# REPORT RESUMES

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NURSING EDUCATION FACILITIES, PROGRAMING CONSIDERATIONS AND ARCHITECTURAL GUIDE, REPORT OF THE JOINT COMMITTEE ON EDUCATIONAL FACILITIES FOR NURSING OF THE NATIONAL LEAGUE FOR NURSING AND THE PUBLIC HEALTH SERVICE.

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THE JOINT COMMITTEE ON EDUCATIONAL FACILITIES FOR NURSING OF THE NATIONAL LEAGUE FOR NURSING AND FOUR GROUPS OF CONSULTANTS REPRESENTING RESPECTIVELY BACCALAUREATE, DIPLOMA, ASSOCIATE DEGREE, AND PRACTICAL NURSING PROGRAMS ADVISED THE PUBLIC HEALTH SERVICE STAFF IN DEVELOPING THIS GUIDE TO THE CONSTRUCTION OF NEW SCHOOLS AND THE EXPANSION OF EXISTING PROGRAMS. THE COMMITTEE REVIEWED THE LITERATURE, VISITED NURSING EDUCATION FACILITIES IN VARIOUS PARTS OF THE NATION, AND HELD DISCUSSIONS WITH THE CONSULTANT GROUPS. AN INTRODUCTORY OVERVIEW OF NURSING EDUCATION DESCRIBES EACH OF THE ABOVE TYPES OF NURSING EDUCATION PROGRAMS AS WELL AS GRADUATE EDUCATION, RELATIONSHIPS WITH COOPERATING HEALTH AGENCIES, CLINICAL FACILITIES NEEDED FOR NURSING RESOURCES, AND TRENDS IN ADMISSION AND GRADUATION. EACH TYPE OF PROGRAM IS TREATED IN TERMS OF PROGRAM CHARACTERISTICS, NEEDS AND GOALS, PROGRAMING AND SPACE REQUIREMENTS, AND OPERATING BUDGET. THE CHAPTER "ARCHITECTURAL CONSIDERATIONS" TREATS TEACHING, RESEARCH, FACULTY, ADMINISTRATIVE, STUDENT, SUPPORTING, CONTINUING EDUCATION, AND MECHANICAL FACILITIES AS WELL AS FIRE SAFETY AND ACOUSTICS. CONSTRUCTION COSTS ARE DISCUSSED AND DIAGRAMS SUGGEST METHODS OF ARRANGING VARIOUS FACILITIES. THIS DOCUMENT IS AVAILABLE AS FS2.74/4--F1B FOR 65 CENTS FROM SUPERINTENDENT OF DOCUMENTS, U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON, D.C. 20402. (JK)

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# NURSING EDUCATION FACILITIES

## programing considerations and architectural guide

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**U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE**
**Public Health Service**

THIS SPECIAL STUDY brings together in one document a comprehensive picture of facility needs as related to four types of nursing education programs. These are the diploma and practical nursing programs, the associate degree program, and collegiate programs at the baccalaureate and graduate levels.

While primarily a guide for those involved in establishing new nursing education facilities or expanding existing programs, information of interest is also presented for faculty, community planners, and the staff of various types of health facilities which provide learning experiences for the student nurse.

In light of accelerated building programs resulting from recently enacted legislation which provides grants to baccalaureate programs, this report should prove particularly helpful at this time.

Harald M. Graning

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# NURSING EDUCATION FACILITIES

## programing considerations and architectural guide

*Report of the Joint Committee*
*on Educational Facilities for Nursing*
*of the National League for Nursing*
*and the Public Health Service*

**U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE**
**Public Health Service**
**Washington, D.C. 20201**

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# FOREWORD

Any attempt at resolving the Nation's critical nursing shortage will involve the construction of new facilities or additions to those which already exist. This report, the result of intensive, thoughtful work by the members and special consultants to the Joint Committee on Educational Facilities for Nursing of the National League for Nursing and the Public Health Service, should serve as a useful guide for those who are taking steps to fill this crucial need.

The committee which advised the Public Health Service staff in the development of this document held its first meeting in February 1963. Later, four groups of consultants were appointed, each group representing a different type of nursing education program. The value judgments of the experts comprising both the committee and the special groups are incorporated in the material presented. Special recognition is also due to the faculties and administrators of the various facilities visited during the course of the project.

The sponsors are indeed grateful for the important contribution made by those who aided in the development of this important document. The guidelines presented should be most helpful in the ultimate establishment of adequately planned nursing education facilities wherever needed in the Nation.

Inez Haynes

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Dear Miss Haynes and Dr. Terry:

After more than a year and a half of study and careful deliberation, the Joint Committee on Educational Facilities for Nursing herewith submits its report intended as a guide to those contemplating the construction of new schools or the expansion of existing programs.

The methodology used in developing this study consisted of a review of the literature, visits to nursing education facilities in various parts of the Nation, discussions with special consultant groups, and meetings of both the full committee as well as subsections of the committee. Every effort was made to pool the judgment of experts in the four programs so that the guidelines which ultimately evolved would represent the most desirable approach to the design of nursing education facilities.

While the material presented might serve numerous purposes, the primary objectives were (1) to call attention to essential factors in developing a nursing education facility program, and (2) to present design considerations which might be adapted to meet a program's particular needs. In addition, it is hoped that many will find particularly useful the profile developed to more clearly delineate the characteristics and needs of each type of program.

The pros and cons of presenting material pertaining to the four nursing schools in separate documents were discussed; and the committee decided that one publication which included all four programs would be the most advantageous. With such a document, planners will have an opportunity to review each program before deciding which would be the most desirable. In addition, institutions may find it useful to have information readily available pertaining to another program.

As a further aid to the reader, each chapter relating to a particular nursing program is complete in itself. Because of this, however, a certain amount of repetition was found to be necessary in describing program objectives, needs, and goals.

Particular thanks are due to the staff members of the National League for Nursing who reviewed school catalogs and compiled information on faculty-student ratios and costs of operating nursing programs. The major part of the writing and editing of the report, including the development of architectural designs, is the work of the staff of the Division of Hospital and Medical Facilities of the Public Health Service. We owe a special debt of gratitude to Mrs. Ruth Yankauer for her coordinative efforts and leadership in the development of this study.

Jack C Haldeman
Jack C. Haldeman, M.D.
*Chairman*

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# INTRODUCTION

**THE NEED for a greatly increased supply of nurses has been documented by many studies in recent years. The latest of these, "Toward Quality in Nursing,"[1] sets feasible goals by 1970. This study recognizes that if realistic goals are to be met, additional educational facilities must be provided to accommodate expanded enrollments and faculties necessary to carry out educational programs.**

**With growing public demands for nursing services and with increases in nursing research as a reflection of public policy, even more nurses and nurse scientists must be trained. This training will require a substantial investment in educational facilities for all types of nursing programs.**

**The establishment of a new program in nursing or planning for facilities for rapidly expanding enrollments has been such an infrequent occurrence that it is rare for any nurse educator or architect to have participated in the design of more than one school. The lack of published reports on planning and construction of nursing educational facilities and the sizable costs of construction led the Surgeon General's Consultant Group on Nursing to recommend that "Steps should be taken by the Public Health Service and the nursing profession to prepare prototypes of school facilities most conducive to efficient and effective teaching of nursing."**

**The Public Health Service and the National League for Nursing jointly appointed a committee composed of hospital administrators and educators from general, medical, and nursing education. This committee was to advise the Public Health Service in the development of a guide to be used by colleges, universities, hospitals, communities, and regional groups in planning educational facilities for nursing.**

**The committee recommended that consultants for each type of education program be appointed to describe the educational practices which influence space requirements and to determine the facilities necessary to carry out the specific type of educational program. The staff and each consultant group reviewed pertinent literature, made site visits, and examined architectural plans for the particular program being described.**

**The schools visited were organized in hospitals, vocational educational systems, junior colleges, and colleges and universities. Some were in small communities, some in metropolitan areas. Each school had either recently built or was planning to build a new educational facility. Valuable information obtained from these visits has been incorporated in this report.**

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[1] **U.S. Department of Health, Education, and Welfare, Public Health Service, *Toward Quality in Nursing*. (Item 6, Selected Bibliography, Ch. II, p. 17.)**

## OUTLINE OF REPORT

Six chapters and two appendices comprise this report. The first and final chapters, as well as the appendices, are overall in scope and have application for all programs. The remainder of the report (chs. II–V) relates to specific types of nursing education facilities.

Chapter I, "Overview of Nursing Education," contains a brief description of each program for nursing, where it is organized, and the purpose of the program. It also includes information on admissions, graduations, and the goals for expansion to meet needs projected to 1970.

Chapters II, III, IV, and V relate to the following nursing programs, respectively: the diploma, associate degree, baccalaureate and graduate degrees, and practical nursing. In each chapter, a description is presented of special aspects of each program from the standpoint of their effect on space planning for teaching, faculty, and administration.

In each chapter relating to individual nurse education programs, a hypothetical school has been described, an annual operating budget projected, and space requirements determined. No attempt was made to compare the operating cost or space requirements of one program with another, since each has its special needs precluding a common basis for comparative purposes. For example, each program differs in purpose, curriculum, and graduation requirements. The determination of the kind of program to be established should be based on the type of nurses for which there is the greatest need.

Chapter VI sets forth planning considerations which will affect the architectural design of a facility. No attempt is made to outline finished plans since this should be the decision of the individual school, after a careful evaluation of various alternatives. Moreover, before the architect begins to develop his plans, the school must first establish its educational program.

A selected bibliography is presented at the conclusion of each chapter, with the exception of the first.

Appendix A presents a review of faculty-student ratios and costs of operating nursing programs. A profile of costs for each of the nursing programs is offered as a guide for administrators to consider.

Appendix B, "Programing for a Nursing Education Facility," lists in outline form the important planning factors which must be considered prior to the development of a building program.

## Chapter I

# Overview of Nursing Education

**THE PRIMARY FUNCTION** of nursing education is to provide qualified nurse practitioners to meet the diversified nursing needs of persons requiring health services. To carry out this function, consideration must be given to the preparation of beginning practitioners, the supervisors required in beginning practice, and the faculty necessary for all types of educational programs. Of equal importance is the need to prepare administrators and persons qualified for research in nursing service and nursing education.

Two distinctive levels of preparation are needed: (1) basic preparation and (2) advanced education for specialization. The basic preparation aims at developing individuals who may, with orientation, supervision, inservice, and continuing education, carry out the nursing services for which they are prepared with increasing competency wherever employed. These programs represent initial education for the practice of nursing. Programs for specialization are on a postbaccalaureate level and are primarily for clinical practitioners, administrators, teachers, and researchers in nursing service and nursing education.

Basic educational programs for nursing prepare students for examination for licensure as a registered professional nurse or as a practical nurse. The programs have marked differences from the standpoint of entrance requirements, curriculum, length of course, job opportunities, and opportunities for advanced study.

## Nurse Education Programs

### REGISTERED NURSE PROGRAMS

Students preparing to become registered nurses may enroll in a diploma program or in programs at the associate and baccalaureate degree levels. Only the recipient of a baccalaureate degree is eligible to apply for graduate study in nursing.

*The Diploma Program.*—The diploma program in nursing is conducted by a single-purpose school of nursing under the auspices of a hospital, or the school is independently incorporated. This program, usually 3 years or less in length, is for the qualified high school graduates who want: (1) an education centered in a hospital, and (2) an early and continuing opportunity to be with patients and with personnel who provide health services.

*The Associate Degree Program.*—The associate degree nursing program is generally established as a division or department of a community junior college, although some are in 4-year colleges or universities. This program is usually 2 years in length, designed to fulfill the educational needs of qualified high school graduates who want (1) to prepare to practice nursing as a registered nurse, and (2) to study in a college where they share the responsibilities, privileges, and intellectual and social experiences with all the other students.

*The Baccalaureate Degree Program.*—A nursing program leading to a baccalaureate degree is conducted by an educational unit in nursing (department, division, school, or college) that is an integral part of a college or university and is organized and controlled in the same way as similar units in the institution.

The baccalaureate degree program is designed to serve the needs and purposes of qualified high school graduates who want: (1) to learn and have practice in caring for patients on a humanistic and scientific basis, (2) to prepare on a baccalaureate level for nursing, (3) to share with students preparing for other occupations all the general advantages of college or university preparation, and (4) to acquire baccalaureate education as a prerequisite to preparation for specialized practice, teaching, administration, or research.

Some graduates of associate degree and diploma programs in nursing may wish to fulfill requirements for a baccalaureate degree. Each college or university establishes its own entrance requirements.

*Graduate Education.*—Graduate nursing programs provide an opportunity to prepare for teaching and administration in all types of educational programs and for supervisory and administrative positions in nursing service. Consultants, clinical specialists, and research workers also require graduate study.

### PRACTICAL NURSE PROGRAMS

A program leading to a certificate or diploma in practical nursing[1] may be organized and operated under public vocational education, hospitals, or other community agencies.

This type of program, usually 1 year in length, is self-contained, complete, and satisfactory for its own purpose, providing preparation exclusively for practical nursing. It is not a part of, nor the beginning of, any other type of educational program in nursing. Its objective is to prepare a worker who will share in giving direct care to patients.

## Hospital and Health Agency Requirements and Responsibilities

The nature of nursing makes it mandatory for the student to have learning opportunities under faculty supervision in several kinds of community agencies in which patients are seen and treated. These may be general or special, acute or long-term care hospitals. The use of outpatient departments of hospitals and of nursery schools, day care centers for adults, and related community health agencies gives students an opportunity to observe persons in all age groups and in various degrees of health. Students need to have experience in the preventive and rehabilitative aspects of nursing in addition to the care of the acutely ill patient. Public health or related community health service agency experiences are required by students enrolled in baccalaureate degree programs.

Most programs use more than one hospital or health agency to obtain sufficient nursing care experiences for the students. On the other hand, many hospitals will be offering nursing care experience to students from more than one type of program and more than one school. Special hospitals, such as children's hospitals and hospitals for the mentally ill, offer affiliations to students from a number of schools. In affiliation with diploma and many practical nurse programs, the special hospital may provide the faculty for student teaching. Associate and baccalaureate degree programs provide the faculty instruction for their students in each hospital or health agency.

Teaching hospitals in medical centers may have students from practical nursing, diploma, associate, and baccalaureate degree programs assigned for patient care experience on the same day. In some instances where there are sufficient patient care units, students from each program may be assigned to different patient care areas. In others, coordinating committees schedule students to use alternate days for patient care experience and classroom instruction. Under the latter plan some patient care experiences may not be available and/or some medical care conferences may not be scheduled on the day that students from one group are in the hospital.

Although the hospital and other community health agencies are primarily organized for patient care, they are also essential in the planning of educational programs for student nurses. The addition of educational programs to patient care requirements imposes responsibilities upon both the educational and service agencies. The boards of trustees of both the service and the educational agencies must understand the requirements for educational programs in service agencies and the mutual responsibilities of each group.

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[1] Some States license the graduates of 1-year programs under the title, "licensed vocational nurse." The term "practical nurse" in this study includes the licensed vocational nurse.

Written administrative agreements covering the educational control of the nursing program and the service control of the hospital and health agency define the mutual responsibility of each. These agreements are developed jointly and are subject to periodic review.

The agreements usually specify that the school will (1) have control of the students' experience, (2) appoint the faculty to teach the students, and (3) select the patients for the students' experience. The hospital or health agency provides (1) facilities such as conference rooms and space for reference materials, (2) time for the instructor and nursing service personnel to plan for the students' experience, and (3) a quality of nursing and medical care that makes it possible for students to learn good nursing care where it is being practiced.

Cooperation between a school of nursing and a nursing service agency is based on a mutual interest in good nursing, both as to education and service as well as a willingness to share what each has to offer. The contributions of the faculty-student group and those of the personnel of the hospital or health agency are thought to balance each other fairly equally.

Hospitals and health agencies which accept nursing students for patient care experience will have space requirements for educational programs that are not usually required in a hospital or an agency not used for teaching. These will include conference rooms, locker and lounge space, and food service for students and faculty when assigned to the hospital.

Each patient care unit used for student experience should provide a conference room to seat at least 12 persons. This room may also be used for the current periodical and reference materials needed by the students. Where nursing service conference rooms are available on patient care units, these may be shared by nursing education.

Students are usually in the hospital or health agency for one or more meals when receiving patient care experience. They will utilize the same food service provided for agency personnel. The addition of a group of students may require enlargement of the food service area or the extension of time for food service. Locker and lounge space must also be provided in the hospital and health agency.

## Clinical Facilities Needed for Nursing Research

Graduate programs in nursing leading to the master's and/or doctoral degree are placing greater emphasis on the preparation of nurses who have depth of content in a highly specialized clinical nursing area. Other programs within the graduate school of the university provide training for nurses in the behavioral and natural sciences. These programs are also preparing nurses to carry out research projects independently or collaboratively with other members of the research team. Nursing research in the clinical area aims at providing new knowledge through scientific inquiry about the specific effects of nursing practice on patient care.

Clinical nursing research requires access to patient care facilities. Nursing care research must be coordinated both with the total medical research program and with the patient's physician. More than one patient care area may be needed to study different types of nursing problems. For example, outpatient departments have been used to study how well patients understand and carry out the instructions given them for medications and treatments to be taken at home. The adult medical units have been used to study nursing practices which would prevent decubitus ulcers and promote wound healing. Among surgical patients it has been possible to identify nursing measures that will relieve such conditions as vomiting to reduce postoperative distress.

## Trends in Admissions and Graduations

Tables 1 and 2 present a 7-year trend in admissions to and graduations from basic nursing programs. Increases are shown both in the number of practical nurse and associate degree pro-

***Table 1. Admissions to initial programs which prepare for beginning practice in nursing, 1956–57 through 1962–63***

| Academic Year | Practical or vocational |  | Associate degree |  | Diploma |  | Baccalaureate |  |
|---|---|---|---|---|---|---|---|---|
|  | Programs | Admissions | Programs | Admissions | Programs | Admissions | Programs | Admissions |
| 1956–57 | 432 | 16, 843 | 20 | 578 | 944 | 37, 571 | 167 | 7, 094 |
| 1957–58 | 520 | 20, 531 | 28 | 953 | 935 | 36, 402 | 172 | 6, 866 |
| 1958–59 | 607 | 23, 116 | 38 | 1, 266 | 918 | 37, 722 | 171 | 7, 275 |
| 1959–60 | 661 | 23, 060 | 48 | 1, 598 | 908 | 40, 013 | 172 | 7, 555 |
| 1960–61 | 693 | 24, 955 | 57 | 2, 141 | 883 | 38, 702 | 174 | 8, 700 |
| 1961–62 | 739 | 26, 660 | 69 | 2, 504 | 875 | 38, 257 | 176 | 9, 044 |
| 1962–63 | (*) | (*) | 84 | (*) | 874 | (*) | 178 | (*) |

***Table 2. Graduations from initial programs which prepare for beginning practice in nursing, 1956–57 through 1962–63***

| Academic Year | Practical or vocational |  | Associate degree |  | Diploma |  | Baccalaureate |  |
|---|---|---|---|---|---|---|---|---|
|  | Programs | Graduations | Programs | Graduations | Programs | Graduations | Programs | Graduations |
| 1956–57 | 432 | 10, 652 | 14 | 276 | 944 | 26, 141 | 167 | 3, 478 |
| 1957–58 | 520 | 12, 407 | 20 | 425 | 935 | 26, 314 | 172 | 3, 650 |
| 1958–59 | 607 | 14, 573 | 26 | 462 | 916 | 25, 907 | 171 | 3, 943 |
| 1959–60 | 661 | 16, 491 | 38 | 789 | 908 | 25, 288 | 172 | 4, 136 |
| 1960–61 | 693 | 16, 635 | 48 | 949 | 883 | 25, 311 | 174 | 4, 039 |
| 1961–62 | 739 | 18, 106 | 57 | 1, 159 | 875 | 25, 727 | 176 | 4, 300 |
| 1962–63 | (*) | (*) | (*) | (*) | 874 | (*) | 178 | (*) |

*Data not available for specified academic year.

Source: National League for Nursing. April 1963.

grams being offered and in the number of graduates each year. Although the total number of diploma programs is decreasing, admissions and graduations have not dropped appreciably, indicating growth for individual schools. The enrollments and graduations from baccalaureate programs are also increasing.

The difference between the number of students admitted to nursing each year and the number who complete the program is a problem as it is in other fields of education. In the Nation as a whole, the completion rate from admissions to professional nursing programs ranges from an average of approximately 70 percent in diploma programs to 59 percent in baccalaureate programs.[2]

The loss to the profession from degree programs is misleading since it includes the dropouts within the first 2 years of college before the student begins her upper division study in nursing, her major field. This includes students who leave college as well as those who change careers but may complete college. Those who may transfer to another college are also included in this figure.

Determining the completion rates from associate degree programs on a national basis has been difficult for many reasons. These programs are fairly new and experience indicates that it requires approximately 3 years for a new program to achieve stabilization of its enrollment. Dropouts are usually high in the first year of the school's operation. The number of new programs each year adds to the difficulty in determining, on a national basis, the completion rate from schools that may have stabilized their enrollments.

The various factors which complicate the interpretation of the completion rates of the aforementioned nursing programs do not apply to the practical nursing programs. The statistics provided by these programs show a more favorable completion rate. Practical nursing programs report that three out of every four students admitted complete the program.[3]

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[2] Unpublished study of "Attrition Rates in Schools of Nursing," Department of Studies, National League for Nursing, 1962.

[3] *Education for Practical Nursing*, National League for Nursing. (Item 1, Selected Bibliography, ch. V, p. 57.)

## Nursing Needs

The Surgeon General's Consultant Group on Nursing in its publication, "Toward Quality in Nursing," discusses present and future needs and recommends feasible goals which might be attained by 1970. The Group recommended increases in all types of programs, with a triple increase in the number of nurses receiving master's and doctoral degrees. The recommended increases are shown in the following tabulation.

| *Type of program* | *Number of graduates 1961* | *Goal for number of graduates 1970* | *Percent increase* |
|---|---|---|---|
| Master's or higher degree | 1, 020 | 3, 000 | 194 |
| Post-R.N. baccalaureate | 2, 456 | 5, 000 | 104 |
| Total basic programs | 30, 267 | 53, 000 | 75 |
| Basic baccalaureate | 4, 039 | 8, 000 | 98 |
| Diploma | 25, 311 | 40, 000 | 58 |
| Associate degree | 917 | 5, 000 | 445 |

Source: *Toward Quality in Nursing*, p. 22. (Item 6, Selected Bibliography, ch. II, p. 17.)

In addition to the goals shown in the above table, the report noted that by 1970, some 350,000 licensed practical nurses are expected to be needed.

### PLANNING TO MEET THE NEEDS

The most rapid increase in graduations from all types of nursing programs will probably take place in well-established, nationally accredited programs. Nevertheless, some new programs may also need to be developed.

Expansion of health services, health facilities, and preparation of health personnel must be coordinated if new and expanded nursing education programs are to be established wherever needed. Educational and financial support must be available to assure continuing growth and development.

Intelligent planning for expansion of nursing programs or the development of new programs will require the cooperation of official and voluntary groups concerned with meeting the educational and health needs of the area involved.

The area to be considered in planning may vary with different programs. Community junior colleges and some vocational schools under boards of education usually serve a fairly well-defined geographic area. Although there are interstate enrollments in hospital-controlled schools, liberal arts colleges and universities, it may be possible to define a geographic area from which the majority of their students are recruited. The area served by graduate programs, on the other hand, may consist of interstate regions, the Nation, and may have large international enrollments.

Groups interested in planning for nursing education will be composed of interested and knowledgeable persons from the area involved. They may wish to have specialized consultant service for some phases of the planning. Fact-finding surveys to determine the nursing manpower needs and resources have been conducted by many States. The statistics in relation to service and educational needs must be kept current and correlated with demands created by the construction of new health facilities or the establishment of new health programs. Planning groups may wish to use consultants in order to arrive at sound decisions. Consultants, however, cannot assume the responsibility for making the decisions which must be made by the local planning group.

The State agency which approves schools for registered or practical nurses must be consulted to assure that graduates from any program will be eligible for examination for licensure. The National League for Nursing should be consulted concerning requirements for national accreditation.

### PROGRAMING FOR CONSTRUCTION

Construction to expand an existing school or to establish a new school will be costly. Such decisions will have long-range effects. It is therefore important that planning incorporate a high degree of flexibility which will permit future growth or change at a reasonable cost. The program will consist of two parts, the functional program and the building program.

The functional program to be developed by the dean or director will be used by the architect for the building program. Functional programing describes the educational requirement of the courses of instruction in such a way that the architect can determine the teaching, faculty, administrative, and supporting spaces required as well as the equipment and supplies needed to carry out the purposes of the school.

Functional programing will include the setting and control of the program and the relationships of proposed facilities to other usable spaces such as libraries and auditoriums. The number of persons to be accommodated in administrative and

**faculty space must be determined. Teaching space requirements will be based on the number of students to be taught, the teaching methods to be used, and the projection of class schedules.**

**Functional planning will require approximately six months. In addition, architectural planning and construction of the building may require from 1 year to 18 months.**

## *Chapter II*

# Diploma Nursing Programs

**The diploma nursing program** is conducted by a single-purpose school and may be either hospital-sponsored or independently incorporated. This program serves the interests and needs of qualified high school graduates who want (1) an education centered in a hospital, and (2) an early and continuing opportunity to be with patients and with personnel who provide health services.

## Program Characteristics

Diploma programs emphasize the basic scientific principles of nursing care and of recognizing indications of diseases, disabilities, and patient needs. The curriculum is planned to equip graduates with the skills necessary to organize and implement a nursing plan that will meet the immediate needs of one or more patients, to be responsible for the direction of other members of the nursing team, and, to the degree possible, promote the restoration of the patient's health.

Some graduates of diploma programs may wish to fulfill requirements for a baccalaureate degree in nursing. Admission is granted in accordance with the admission policies of the particular college or university they wish to attend.

### APPROVAL AND ACCREDITATION

The appropriate State licensing authority must approve diploma nursing programs. Diploma graduates are eligible for admission to State examinations for licensure as registered nurses. After licensure, they are qualified for beginning general-duty nursing positions in hospitals and related agencies.

The National League for Nursing, Department of Diploma and Associate Degree Programs, upon request from the administrative board of control, will evaluate the school of nursing for national accreditation. Accreditation of the hospital by the Joint Commission on Accreditation of Hospitals is a prerequisite for evaluation of the nursing education program.

### NUMBER OF PROGRAMS AND GRADUATES

In 1962 there were 883 diploma programs, a decrease of 79 programs since 1956. (See table 3.) However, 60 percent of the hospitals that discontinued their programs during this period are still involved in nursing education.[1] Some are now conducting a practical nurse program. Others have administrative agreements for student practice with nursing programs under the control of vocational schools, community colleges, or colleges and universities.

During the same period the number of graduations each year has remained at approximately 25,000.[2] This indicates that the size of the individual school is increasing.

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[1] Cunningham, Elizabeth V., *Today's Diploma Schools of Nursing*, p. 66. (Item 4 in Selected Bibliography, p. 17.)

[2] Ibid., p. 5.

*Table 3. Admissions and graduations from diploma programs in nursing, 1955–62*

| Academic year | Programs | Admissions | Graduations |
|---|---|---|---|
| 1955–56 | 962 | 37,763 | 26,828 |
| 1956–57 | 956 | 37,571 | 26,141 |
| 1957–58 | 944 | 36,402 | 26,314 |
| 1958–59 | 935 | 37,722 | 25,907 |
| 1959–60 | 918 | 40,013 | 25,188 |
| 1960–61 | 908 | 38,702 | 25,311 |
| 1961–62 | 883 | 38,257 | 25,727 |

Source: National League for Nursing.

## CURRICULUM

The diploma program curriculum includes, in addition to nursing subjects, certain courses from general education and from physical, biological, and social sciences that are supportive to nursing. Among the general education courses offered are religion and ethics, literature, history, and English. The supportive sciences include psychology, sociology, anatomy and physiology, microbiology, nutrition, and chemistry. The nursing courses include lectures, demonstrations, laboratory work, and patient care experience in the fundamentals of medical, surgical, pediatric, obstetric, and psychiatric nursing.

Traditionally, diploma programs covered a 3-year timespan and required 141 to 144 weeks of instruction and patient care experience. All general and supporting instruction was provided within the parent institution. In recent years, however, new practices in curriculum organization have resulted in changes affecting the time required for the completion of the program and the way in which instruction in general and supportive educational courses are provided.

In the 1962 study of diploma schools of nursing, two [3] curriculum patterns were identified:

1. Schools that arrange for at least some of the instruction in general education to be given by a college or colleges, and

2. Schools that have their own faculty provide all the instruction in general education.

## RESOURCES FOR PATIENT CARE EXPERIENCE

Diploma programs use the patient care facilities of the responsible hospital as the laboratory for the major share of the instruction in nursing. When the hospital's clinical resources are not considered adequate for all the clinical learning experience planned for the educational program, the facilities of other institutions or agencies are used. Agencies other than the responsible hospital are most frequently used for experience in psychiatric nursing and in the nursing of children. In the majority of instances, not only patient care facilities but also instruction personnel are provided by the cooperating or affiliating agency. The majority of schools utilize at least two such agencies. In 1962, all but 20 of 728 diploma schools reported that they use more than one hospital for student experience. Psychiatric experience is obtained in another institution by 682 of the diploma schools.[4]

Faculty members plan the patient care experience and cooperate with nursing service in student assignments. The cooperation of hospital and nursing service administration in helping to carry out the educational aim of the nursing program is a crucial element in the development of nursing education. Therefore, the relationship between nursing service and nursing education must be clearly defined and understood.

## FACULTY

In diploma programs, the administrative and instructional personnel may be on a full- or part-time basis. For example, personnel from colleges or universities may teach general educational and science courses; social workers, dietitians, chaplains, and others may have part-time teaching responsibilities. The nurse faculty members who teach the nursing courses are usually on a full-time basis.

The basic full-time nurse faculty for a diploma program consists of an administrator and one instructor in each of the nursing courses. As a guide for planning, a ratio of 1 instructor to 10 students may be used. This does not mean that 1 instructor will necessarily supervise 10 students in patient care practice. An instructor may demonstrate and supervise patient care for one student with one patient, or she may have two groups of four or five students within the patient care area. Factors affecting the number of faculty needed include the teaching methods used and the number of agencies and patient care units required for student experience. The annual admissions and the total enrollment will indicate the number of faculty needed. Programs that provide instruction for some or all of the sciences from the school of nursing will require additional faculty.

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[3] Cunningham, Elizabeth V., *Today's Diploma Schools of Nursing*, p. 29. (Item 4, Selected Bibliography, p. 17.)

[4] Ibid., p. 15.

## Needs and Goals

The Surgeon General's Consultant Group on Nursing in its publication "Toward Quality in Nursing" recommends that diploma schools should graduate 40,000 students a year by 1970. This would be a 58-percent increase over the number graduated in 1961.[5] If this goal is met, the expansion of existing schools must exceed that of the past 5 years and some new programs may need to be developed.

### MEETING THE NEEDS

The greatest increase in diploma graduates will probably occur as a result of expansion of well-established nationally accredited schools. Many factors must be considered in determining whether to expand enrollments in existing programs or to plan for a new school. State or regional plans for the establishment of associate degree or baccalaureate programs may require a reevaluation of the sources of applicants to diploma programs.

Evaluation of available patient care experience for student learning may indicate the need to establish affiliation agreements with other hospitals for some student experience.

Cost studies should be reviewed to determine the expense of the educational program per student per year. In some instances boards of trustees have established the annual admission and total enrollment for a program on the basis of the amount that can be allocated from the budget to the educational program.

### NEW SCHOOLS

A new school should be considered only where regional or State surveys have indicated the need for more diploma nurses than can be prepared by expanding enrollments in existing programs. Before establishing a new program, consideration should be given the recommendations of a nurse consultant[6] who will survey and evaluate the availability of patient care and other community health agency resources for student learning. The consultant will also advise as to the nursing program requirements to meet State and National criteria for approval and accreditation.

After a decision has been reached to establish a nursing program, the next step is the appointment of the basic faculty. At a minimum, the faculty should include the program director and instructors in the major nursing areas. These persons should be appointed at least 1 year before students are admitted. This time is necessary to allow functional and building programing to be carried out. The architect will use the functional plan as the basis for developing the building program.

## Programing and Space Requirements

The sponsors and the architect should use the curriculum, housing needs, patterns of affiliations, and the total educational program to develop a written functional program. The functional program is the basis for the development of the building program and the preparation of architectural drawings. The building program will include space requirements for teaching, faculty administration, housing, and supporting services.

### TEACHING SPACE

Programing for teaching space will be based on the size of the student group and the teaching methods to be used. In diploma programs the total student enrollment consists of the first-year admissions, plus the second- and third-year enrollments.

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[5] *Toward Quality in Nursing*, p. 22. (Item 6, Selected Bibliography, p. 17.)

[6] Lists of persons qualified for educational consultation may be obtained from the National League for Nursing, State boards of nurse examiners, and the Division of Nursing of the U.S. Public Health Service.

Programing for teaching space will be based on the size of the group that can be accommodated for different teaching methods. For example, the size of the group for such methods as lecture or lecture with demonstration and student participation will indicate the number of sections of a course that will need to be scheduled. A projection of the class schedule for the maximum enrollment is necessary to determine the type and number of classrooms needed. The architect should be advised of the teaching methods and educational media to be used so that the design and equipment recommended will reflect the school's special needs.

Other factors that affect the number and types of teaching spaces are the decision to teach the sciences in the home school or to purchase science instruction outside the school, the need to provide space for observers such as practice teachers, and the availability of classrooms for scheduling at the optimum time for teaching.

Clinical nursing classes must be scheduled on the basis of the most suitable hours for patient care practice. In many situations, the morning hours may be the best for student practice in medical-surgical, pediatric, psychiatric, and obstetric nursing. It will then be necessary to schedule lectures in the afternoon. In these instances, the total number of classrooms to be provided may be greater for nursing than for programs that schedule classes both in the morning and afternoon.

To provide flexibility for future expansion, it is recommended that: (1) lecture rooms be planned to accommodate the maximum enrollment projected; (2) schools which may be used as practice teaching centers by graduate nursing programs provide seating for observers; (3) the number of smaller classrooms be sufficient to permit scheduling additional sections as enrollments and faculty members increase; and (4) architectural design and engineering incorporate features which, when necessary, can be modified to accommodate future changes in program and teaching methods.

Teaching methods commonly used that affect architectural planning include demonstrations of patient care, and the projection and/or monitoring of demonstrations by television. The architect should be informed of the planned projection for films, slides, tape recordings, and other audiovisual aids.

The teaching space to be planned will include lecture, class, multipurpose, and conference rooms; library; and science laboratories.

*Lecture-Demonstration Room.*—Lecture-demonstration rooms may be needed to seat the total number of students to be admitted in any one class. If space for demonstration is included, these rooms may be used for the lecture portion of nursing courses. Where the instructor imparts information by lecture, larger groups can be accommodated in a single room which provides fixed seating.

*Classrooms.*—Teaching methods that include student participation require classrooms for small groups with movable seating. This type of room is used to accommodate sections of the class for courses such as medical, surgical, maternal and child health, and psychiatric nursing. The faculty should determine the size of each group.

*Multipurpose Room.*—Nursing care of patients requires that the student develop skills in caring for the patient and handling certain equipment for patient care. For this type of teaching the room should stimulate the patient care area of the hospital. After demonstration by the instructor and supervised laboratory practice, the student may need independent practice to improve her skill in such things as positioning a patient and maintaining asepsis by the use of gowns, gloves, and sterile instruments. The faculty may also wish to develop new equipment, test modifications that may be made in techniques and/or procedures, or experiment with modified arrangements of service facilities for patient care.

*Conference Rooms.*—Rooms for small group conferences are required within the educational unit for teaching groups of students. These may be used for students assigned to one patient care area or for students assigned to more than one area.

*Science Laboratory.*—The diploma program curriculum requires instruction in anatomy, physiology, microbiology, chemistry, and other science courses. The present trend is for diploma programs to purchase instruction and/or laboratory space in these courses from educational institutions within the community. This method may eliminate the need to provide expensive space with limited utilization. The inability to provide qualified faculty to teach these courses for a nursing program has stimulated this trend. The school will need to determine the way in which science instruction will be provided in order to determine the need for science laboratories.

*Nutrition Laboratory.*—Current practice in accredited diploma programs integrates the principles of nutrition into courses relating to the nursing care of patients. Laboratory practice in cooking is usually not included. Therefore, many schools are not planning nutrition laboratories. Some are converting existing nutrition laboratories to classrooms, office space, and other uses.

*Library.*—Diploma programs use one of two methods to provide library facilities for students. The majority of programs provide a separate facility within the educational unit. An increasing number combine nursing reference material with the medical library for the hospital. In either instance, the library should provide study space for approximately one-third of the student population. The schedule for the library must recognize that students will require access to the library in the late afternoon and evening. It therefore should have an entrance that can be used when the remainder of the educational unit may be closed.

*Educational Media Storage Area.*—Many schools are planning for the library to become the center for distributing and storing educational media such as tape recordings, films, teaching machines, and anatomical models. If this method of storing educational media is not used, other storage areas will be needed.

## FACULTY SPACE

Space requirements for the faculty include conference rooms, offices, lounge, lockers or locker rooms, and toilets. Conference rooms are needed for faculty meetings and meetings with representatives from cooperating institutions and agencies for program planning.

Each faculty office should be designed to accommodate only one faculty member, since privacy is a fundamental requirement. The number of offices should be based on a 10-year anticipated expansion in enrollments. A ratio of 1 nurse faculty member to 10 students should be used as a planning factor. This refers to the faculty members who teach nursing courses and supervise patient care experience. If the school employs full- or part-time instructors for the physical, biological, and social sciences, or nutrition, additional office space will be needed. Faculty lounges and toilets are also essential.

## ADMINISTRATIVE SPACE

The diploma program is organized as a "self-contained" school. Many of the nonacademic functions, such as student health, recreation, and student counseling carried out by central administration of other types of educational institutions, become the responsibility of the administration of the diploma school.

The administrative spaces will include a lobby reception room for visitors, general offices, space for a receptionist and clerk-typists, general storage area, and offices for the program director and her assistants.

*Lobby Reception Area.*—This space may be a control point for guests and may be under the general supervision of a receptionist who is also a clerk-typist. Toilets for visitors should be provided.

General office space may provide for clerk-typists and the control of incoming and outgoing messages. Space for the duplication of educational materials may be adjacent to the general office.

*Director's Office.*—The director of the program will require a private office with a space for small group conferences with families of students, potential applicants, and faculty committees.

*Assistant Director's Office.*—Office space for one or more assistant directors will be required. The school's total enrollment will determine the number of assistants needed.

*Secretary's Office.*—The program director will require a full-time secretary in addition to the clerk-typists provided for general faculty use.

*Other Offices.*—Offices for the persons carrying out the functions of registration, admissions, student counseling, and student health service will be required by diploma programs. The size of the total enrollment will determine whether certain functions can be combined or whether each function requires a full-time person.

## SUPPORTING SPACE

Supporting areas will include janitors' closets, corridors, mechanical equipment, and storage rooms.

*Lockers.*—A lounge and locker space will be needed for day students who live within a commuting area. In addition, space is essential for those who must change from street clothes to uniform.

## CONTINUING EDUCATION SPACE

Diploma programs cooperate with professional nursing organizations and hospital nursing service in sharing classrooms and faculty for refresher courses for nurses reentering active practice. Workshops are also provided to introduce new nursing practices.

*Assembly Rooms.*—Diploma programs have infrequent, but recurring, requirements for a large assembly or auditorium-type room. This facility may be used for meetings of the total student body, graduation exercises, and social or recreational types of programs. Although the percent utilization of such space by nursing does not warrant building an auditorium exclusively for the use of nurses, the total requirements for such space by the hospital, medical staff, and others may indicate the need for an auditorium. It is frequently placed adjacent to a nursing education unit.

## STUDENT HOUSING

Diploma programs provide housing for students in dormitories which also provide for the social and recreational life of the student. The majority of diploma programs permit students within commuting distance to live at home. However, many students prefer to live in the residence. Day students seldom comprise more than 20 percent of the total enrollment. The cost of maintaining the students accounts for approximately 40 percent of the noneducational costs in diploma programs.

The type of residence to be provided should be similar to that required in any program for students beyond high school. Requirements for college housing have been developed by college housing specialists [7] and these will be of assistance to groups planning students' residences.

## RESOURCES FOR PATIENT CARE EXPERIENCE

Conference space will be needed in the patient care areas of cooperating hospitals and health agencies and in the educational unit.

Students enrolled in clinical nursing courses will be assigned in small groups for patient care experience in medical, surgical, pediatric, psychiatric, and other patient care areas. Precare and postcare planning conferences are an integral part of this experience. These conferences are scheduled while the student is assigned to the patient care area—probably during the morning or early afternoon hours. The number of conference rooms needed will depend upon the number of sections for each class. For example, if there are 6 groups of students in medical-surgical nursing, 2 groups in psychiatric nursing, 2 in maternity nursing, and 2 in pediatric nursing, there might be 24 conferences to be scheduled in any one day. Where nursing service conference rooms are available on patient units, there are certain hours of the day when they might be available for conferences with nursing students.

These conference rooms should provide for flexible seating arrangement. If taping of conference is anticipated, acoustical treatment may be necessary in the room. Where televised demonstration of patient care is planned, monitoring sets will be needed.

*Lockers and Lounges.*—If the nurses' residence is closely connected to the hospital, locker space may not be needed within the hospital. However, if students must wear coats or capes over their uniforms, space for their storage will be required.

*Food Service.*—This is usually provided in the general employee dining room of the hospital.

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[7] *College Students Live Here.* (Item 2, Selected Bibliography, p. 17.)

# PROFILE OF A DIPLOMA PROGRAM ORGANIZED IN A HOSPITAL

THE REMAINDER of this chapter presents a profile of a typical diploma program organized in a hospital, based on a composite picture of such facilities. This profile, offered as a guide, should be adapted in accordance with the individual needs of the school.

*Size of School.*—Space requirements have been planned for a diploma program admitting 64 students each year. The total enrollment is 148 students.

The personnel to be accommodated are:

1 director
1 assistant director
15 nurse faculty members
1 admissions clerk and registrar combined
1 secretary
5 clerk-typists

## Space Requirements

The student health program is included in the hospital employee's health service. The offices for residence director and social and recreational directors are in the residence. One secretary is assigned to the director of the program and five clerk-typists provide clerical services for the faculty and the admissions-registrar's office.

The teaching methods used are (1) lecture-demonstration for the total number of students admitted in any one year, and (2) lecture, demonstration, and discussion with groups composed of either one-half or one-quarter of the annual admissions. All teaching space has been planned to accommodate the student group, plus additional space for visitors, practice teachers, or expanded enrollments.

Space requirements have been developed showing both the inclusion or exclusion of science laboratories.

The library is a part of the educational unit. It provides space for 3,000 volumes and 1,000 bound periodicals. Study space for one-third of the students is planned.

### PATIENT CARE EXPERIENCE AREA

Each patient care area used for student teaching in the hospital has a nursing service conference room which is shared by nursing education. This conference space accommodates reference materials and other teaching aids such as film projection or tape recorders.

Lockers are not provided in the hospital. Students obtain their meals in the employee dining room.

### CONTINUING EDUCATION

The school cooperates with local nursing organizations and hospital nursing service in making available classrooms, multipurpose room, and the assembly hall for refresher courses for inactive nurses.

As shown in table 4, the total net usable space for this program, when science laboratories are not in the home school and no assembly room is provided, is estimated as follows:

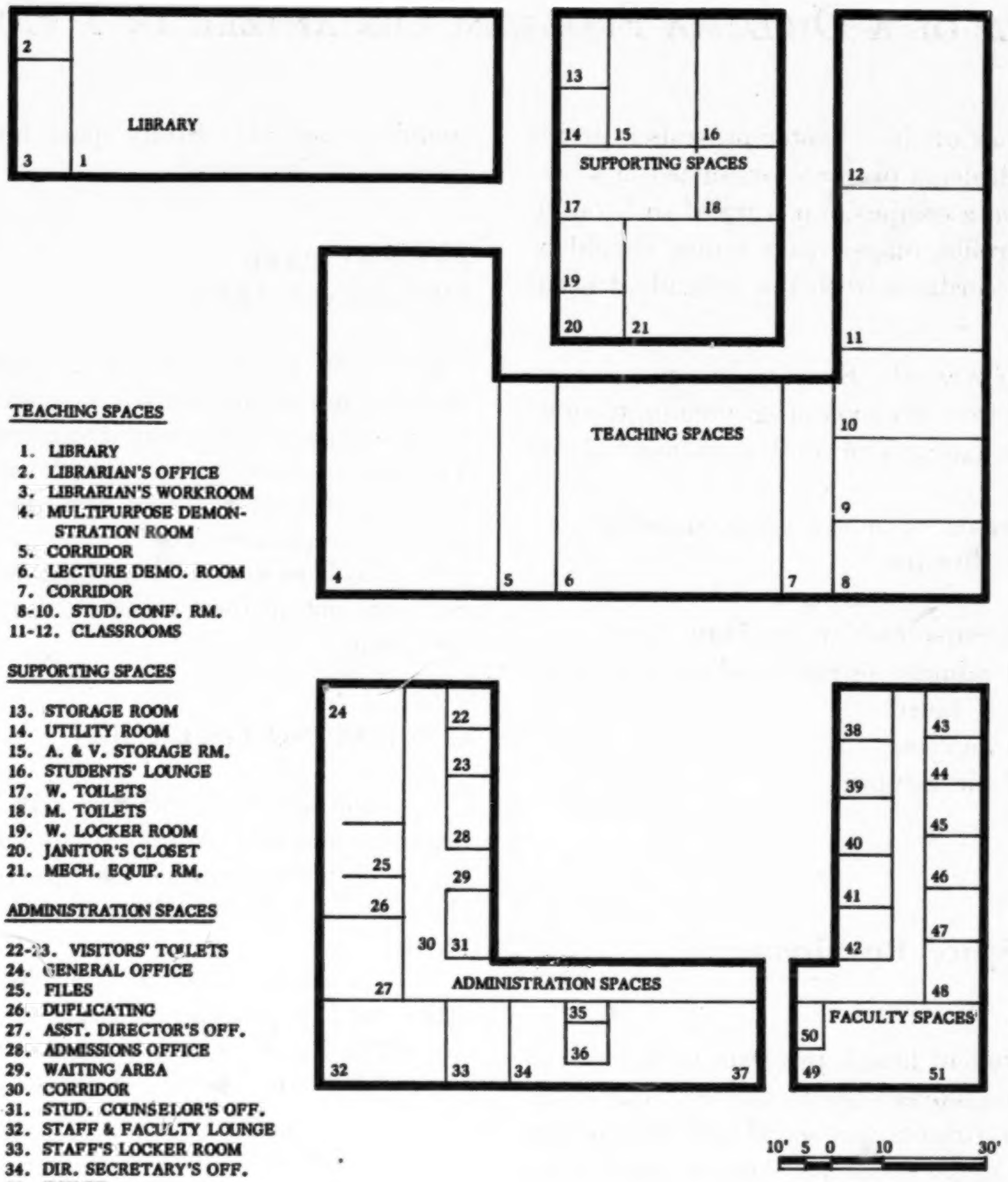
| *Space* | *Square feet* |
|---|---|
| Teaching | 9,330 |
| Faculty | 2,277 |
| Administration | 1,660 |
| Supporting area | 1,580 |
| Total | 14,847 |

When laboratory facilities are in the home school and no assembly room is provided, the additional net usable space to be added is estimated as follows:

| *Space* | *Square feet* |
|---|---|
| Teaching | 4,368 |
| Faculty | 500 |
| Total | 19,215 |

The addition of an assembly room will add 3,000 square feet, making the total net usable space 22,215 square feet.

Space relationships for a diploma program are shown in figure 1.


LIBRARY
SUPPORTING SPACES
TEACHING SPACES
ADMINISTRATION SPACES
FACULTY SPACES
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**TEACHING SPACES**

1. LIBRARY
2. LIBRARIAN'S OFFICE
3. LIBRARIAN'S WORKROOM
4. MULTIPURPOSE DEMONSTRATION ROOM
5. CORRIDOR
6. LECTURE DEMO. ROOM
7. CORRIDOR

8-10. STUD. CONF. RM.
11-12. CLASSROOMS

**SUPPORTING SPACES**

13. STORAGE ROOM
14. UTILITY ROOM
15. A. & V. STORAGE RM.
16. STUDENTS' LOUNGE
17. W. TOILETS
18. M. TOILETS
19. W. LOCKER ROOM
20. JANITOR'S CLOSET
21. MECH. EQUIP. RM.

**ADMINISTRATION SPACES**

22-23. VISITORS' TOILETS

24. GENERAL OFFICE
25. FILES
26. DUPLICATING
27. ASST. DIRECTOR'S OFF.
28. ADMISSIONS OFFICE
29. WAITING AREA
30. CORRIDOR
31. STUD. COUNSELOR'S OFF.
32. STAFF & FACULTY LOUNGE
33. STAFF'S LOCKER ROOM
34. DIR. SECRETARY'S OFF.
35. TOILET
36. CLOSETS
37. DIRECTOR'S OFFICE

**FACULTY SPACES**

38-48. FACULTY OFFICES

49. COFFEE PREP. AREA
50. JANITOR'S CLOSET
51. FACULTY CONF. ROOM

***Figure 1. Space relationships in the diploma program.***

## Annual Operating Budget

### PROGRAM CHARACTERISTICS

The program has been in operation at least 3 years. This year, 64 students entered the program; the total enrollment is 148. Second- and third-year students each take one 12-week course in an outside cooperating agency. During the year, the 148 students have a total of 6,096 student-weeks of instruction in the school of nursing. The natural sciences courses are taken outside of the school of nursing. The nursing education staff

**Table 4. *Space requirements for a 3-year diploma program with a total entering class of 64 and a total enrollment of 148***

| Spaces | Nursing education area | | | Remarks |
|---|---|---|---|---|
| | Number of rooms | Group size, each room | Total net area (sq. ft.) | |
| **Teaching** | – | – | 9, 330 | |
| Lecture-demonstration room | 1 | 75 | 1, 940 | |
| Classrooms | 2 | 38 | 1, 370 | |
| Conference rooms | 3 | 16 | 900 | Additional required in hospital. |
| Multipurpose room with storage and utility room | 1 | – | 2, 000 | 8 beds. |
| Science laboratories | – | – | – | Optional. |
| Storage—teaching aids | 1 | – | 120 | |
| Library | 1 | – | 3, 000 | 3,000 books; 1,000 bound periodical volumes. |
| **Faculty** | – | – | 2, 277 | |
| Offices | 15 | 1 | 1, 500 | |
| Conference room | 1 | 20 | 377 | |
| Lounge | 1 | – | 300 | Shared with administrative staff. |
| Washrooms, toilets | 1 | – | 100 | 1 watercloset and 2 lavatories. |
| Lockers | – | – | – | |
| **Administration** | – | – | 1, 660 | |
| Lobby—reception area | 1 | – | 100 | |
| General office | 1 | 5 | 400 | |
| Secretary-receptionist. | | | | |
| Clerk-typists. | | | | |
| Storage area | 1 | – | 120 | |
| Duplicating area | 1 | – | 100 | |
| Director's office | 1 | – | 340 | With coat closet and toilet. |
| Director's secretary office | 1 | 1 | 100 | |
| Assistant director's office | 1 | 1 | 120 | |
| Registrar's office and admissions office | 1 | – | 140 | Combined function. |
| Students' counselor's office | 1 | 1 | 160 | |
| Students' health service | – | – | – | Shared with hospital employees' health service. |
| Staff lounge | – | – | – | Shared with faculty. |
| Visitors' toilets: | | | | |
| Men | 1 | – | 40 | 1 watercloset, 1 lavatory. |
| Women | 1 | – | 40 | 1 watercloset, 1 lavatory. |
| **Supporting** | – | – | 1, 580 | |
| Students' toilets: | | | | |
| Men | 1 | – | 120 | 1 watercloset, 1 lavatory, including 10 full-size lockers. |
| Women | 1 | – | 280 | 7 waterclosets, 7 lavatories. |
| Students' lounge | 1 | – | 300 | |
| Lockers | – | – | 240 | 30 full-size lockers. |
| Janitors' closets | 1 | – | 40 | Or as required. |
| Coat alcoves | – | – | – | As required. |
| Vending machines | – | – | – | As required. |
| Telephone booths | – | – | – | As required. |
| Drinking fountains | – | – | – | Minimum of 4—recessed or as required. |
| General storage | 1 | – | 600 | |
| | | | 14, 847 | Net area. |
| | | | 9, 898 | For walls, partitions, corridors, stairs, and mechanical space. |
| | | | 24, 745 | Total gross area. |
| | | | 167. 2 | Area per enrolled student. |

**Table 4. Space requirements for a 3-year diploma program with a total entering class of 64 and a total enrollment of 148—Continued**

| Spaces | Nursing education area | | | Remarks |
|---|---|---|---|---|
| | Number of rooms | Group size, each room | Total net area (sq. ft.) | |
| Teaching | – | – | 4,368 | |
| Classrooms | 1 | 38 | 648 | |
| Science laboratories | 2 | – | 3,600 | These should be added if the sciences are taught in the home school. |
| Storage and preparation room | 1 | – | 120 | |
| Faculty | – | – | 500 | |
| Offices | 5 | 1 | 500 | |
| | | | 19,215 | Total net area. |
| | | | 12,810 | For walls, partitions, corridors, stairs, and mechanical space. |
| | | | 32,025 | Total gross area. |
| | | | 216.4 | Area per enrolled student. |
| Assembly room | 1 | 200 | 3,000 | Flat floor. |
| | | | 22,215 | Total net area. |
| | | | 14,810 | For walls, partitions, corridors, stairs, and mechanical space. |
| | | | 37,025 | Total gross area. |
| | | | 250.2 | Area per enrolled student. |

consists of an educational director, an assistant educational director, 15 nurse faculty members, a librarian, a counselor, a residence director, a secretary, and 5 clerk-typists.

## BUDGET COMPONENTS

The projected operating budget, as shown in table 5, is based upon an analysis of 31 diploma programs where the total enrollment was closest to that described. Certain items, such as salaries and fringe benefits, are based upon past studies and, therefore, may not reflect current rates.

The costs of this type of nursing program are presented here under two headings: the cost of the educational functions and the cost of the noneducational functions. Educational functions refer to the activities and services that are involved in instruction, per se. Noneducational functions refer to board, room, laundry, and recreation. The costs of these items are not considered in the collegiate programs because the student presumably provides or purchases these items.

**Table 5. Proposed annual operating budget for educational and noneducational functions for a diploma program, with an entering class of 64 and a total enrollment of 148**

| Item | Educational functions costs | Noneducational functions costs |
|---|---|---|
| Total | $194,540 | $192,390 |
| Direct costs | 136,340 | 17,816 |
| Salaries [1] | 116,000 | 12,602 |
| Supplies | 20,340 | 5,214 |
| Indirect costs | 58,200 | 174,574 |
| Staff benefits | 3,956 | 577 |
| Operation of plant | 35,038 | – |
| Administration | 11,630 | 2,097 |
| Library | 7,576 | – |
| Health services | – | 6,233 |
| Laundry | – | 5,195 |
| Dietary | – | 79,707 |
| Residence | – | 80,765 |

[1] Salaries provide for the following personnel: 1 director, 1 assistant director, 15 nurse faculty members, 1 librarian, 1 counselor, 1 residence director, 1 secretary, and 5 clerk-typists.

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6. U.S. Department of Health, Education, and Welfare, Public Health Service. *Toward Quality in Nursing: Report of the Surgeon General's Consultant Group on Nursing.* PHS Publication No. 992. Washington, D.C., U.S. Government Printing Office. February 1963. 73 pp. Price 50 cents.

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## *Chapter III*

# The Associate Degree Nursing Program

THE ASSOCIATE DEGREE nursing program is generally established as a division or department of a community junior college, although some are in 4-year colleges or universities. This program is designed to fulfill the educational needs of qualified high school graduates who want (1) to prepare to practice nursing as a registered nurse, and (2) to study in a college where they may share responsibilities and privileges as well as intellectual and social experiences with students in other educational programs.

## Program Characteristics

The following characteristics identify associate degree nursing programs:

1. The college controls, finances, and administers the program.
2. The program conforms with the overall standards and policies of the college and operates within the framework of its organization, administration, interdisciplinary curriculum committees, and the student personnel program.
3. The policies and procedures promulgated for faculty in other college departments also apply to the nursing faculty.
4. Members of the nursing faculty plan, organize, implement, and teach the nursing courses. They select, guide, and evaluate all learning experiences including those in the patient care areas.
5. The college, by means of written agreements with hospitals and other agencies in the community, provides clinical facilities essential to nursing education.
6. Students meet the requirements of the college and its nursing department for admission, continuation of study, and graduation.
7. The nursing program is organized within the framework of the community junior college curriculum pattern leading to an associate degree.

Graduates of the associate degree nursing program are prepared to give patient-centered nursing care in beginning general duty nurse positions. They are prepared to draw upon a background from the physical, biological, and social sciences in administering nursing care to patients. They relate well with people and are self-directive in learning from experience as practicing nurses. They are prepared to cooperate and share responsibility for the patients' welfare with other general-duty nurses, head nurses, supervisors, attending physicians, and others. As all other beginning practitioners, these graduates need to be oriented to new work situations and given time and opportunity to become increasingly effective in the practice of nursing.

The program is complete for its purpose. Some graduates from associate degree programs may later wish to fulfill requirements for a baccalaureate degree in nursing.

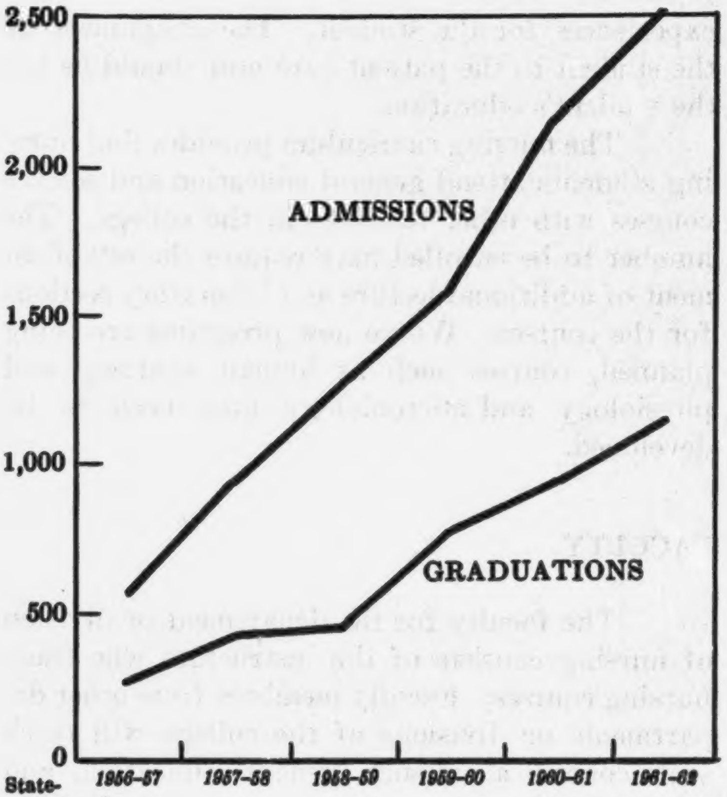
### APPROVAL AND ACCREDITATION

The appropriate State licensing authority must approve the associate degree program, thus making graduates eligible for admission to examination for licensure as registered nurses.

Community junior colleges that are accredited or approved by the appropriate State and regional accrediting agencies may request review for accreditation of the nursing program by the National League for Nursing.

## NUMBER OF PROGRAMS AND STUDENTS

The associate degree nursing program has been in existence since the early 1950's. In 1952 it was offered in four or five institutions. By 1963 there were 84 such programs. Figure 2 shows the rapid growth of admission to associate degree programs between 1956 and 1961. The total admissions to these programs in 1961 was 2,504.



| | 1956-57 | 1957-58 | 1958-59 | 1959-60 | 1960-61 | 1961-62 |
|---|---|---|---|---|---|---|
| State-Approved Programs.. | 20 | 28 | 38 | 48 | 57 | 69 |
| No. of Admissions. | 578 | 953 | 1,266 | 1,598 | 2,141 | 2,504 |
| Programs Graduating Students... | 14 | 20 | 26 | 38 | 48 | 57 |
| No. of Graduates.. | 276 | 425 | 462 | 789 | 949 | 1,159 |

SOURCE: National League for Nursing, Department of Diploma and Associate Degree Programs, 1962.

***Figure 2. Admissions to and graduations from associate degree programs in nursing, academic years 1956–57 through 1961–62.***

## CURRICULUM

The curriculum for the nursing program is the basis for developing the functional program to guide the architect in designing educational facilities. The curriculum should be planned for approximately 2 academic years. It should include courses in nursing and general education relating to the humanities; the social, physical, and biological sciences; and communications. A typical associate degree program requires the student to complete 62–64 semester credits. An approximate equal balance is maintained between the general education and nursing credits.

The distribution of credits does not reflect the distribution of the scheduled time of the student. For example, the hours required for nursing care experience may account for approximately two-thirds of the student's scheduled time.

Nursing care experience in a variety of health agencies is a vital part of nursing education and is therefore planned as an integral part of nursing courses which are broad in scope. Credit is granted for the patient care experience portion of the course within policies set by the college. The nursing courses include lecture and laboratory instruction, and patient care experience in medical, surgical, maternal and child, and psychiatric settings, although these nursing courses may be organized under other titles.

## RESOURCES FOR PATIENT CARE EXPERIENCE

The community college assesses the total resources of the community for its students' educational experiences. The college enters into administrative agreements with community health agencies that will permit the faculty to select patient care experiences for students under supervision of their instructors. At present, more than half of the programs utilize the facilities of four or five agencies which may include three or more hospitals, nursery schools, clinics, facilities for rehabilitation, convalescent homes, and others.

The responsibilities of the college, the hospitals, and the health agencies should be set forth in written agreements. The college will appoint the faculty members responsible for selecting and guiding the student's experience. The hospital or health agency provides conference rooms, lockers, and lounges; in addition, the agency provides time for the nursing staff to serve as resource persons for faculty planning of students' experience.

In all patient care areas, the faculty is responsible for selecting and using the best learning experiences for the student. The assignment of the student to the patient care unit should be for the student's education.

The nursing curriculum provides that nursing students attend general education and science courses with other students in the college. The number to be enrolled may require the establishment of additional lecture and laboratory sections for the courses. Where new programs are being planned, courses such as human anatomy and physiology and microbiology may need to be developed.

### FACULTY

The faculty for the department or division of nursing consists of the instructors who teach nursing courses. Faculty members from other departments or divisions of the college will teach such courses as science, general education, and other related areas.

The basic nurse faculty includes instructors in each of the clinical nursing courses and a program director. Faculty members should be prepared at least at the master's level as expert practitioners and teachers. As enrollments increase, additional faculty at the ratio of 1 nurse faculty to each 10 students will be required. This does not mean that 1 instructor will necessarily supervise 10 students in patient care practice. An instructor may demonstrate and supervise patient care for one student with one patient, or she may have two groups of four or five students within a patient care area. Factors affecting the number of faculty members needed include the teaching methods used and the number of agencies and patient care units used for student experience in a particular clinical area. The annual admissions and total enrollment will indicate the projected number of faculty members needed.

### CONTINUING EDUCATION

The associate degree program faculty may cooperate with nursing organizations and the nursing service staff of community health agencies in programs to improve nursing care. These may consist of refresher courses for nurses returning to practice, or noncredit workshops to introduce new methods for patient care. Some courses may require only lecture space; others may require supervised practice in the multipurpose room and the care of patients in patient care units.

## Needs and Goals

The Surgeon General's Consultant Group on Nursing, in its report on the Nation's nursing needs, recommended that associate degree programs should graduate 4,000 students annually by 1970. This is a 445-percent increase over graduations in 1961.[1] To meet this goal, existing programs will need to increase enrollments and new programs will need to be organized.

The steady increase of associate degree nursing programs in community colleges over the past decade can be expected to continue as community colleges continue to be established. Expansion of existing programs and development of new programs should be based on a clearly defined need for more graduates and a clearly demonstrated probability of success in achieving the quality that will meet national criteria for accreditation and State standards for approval.

Associate degree nursing programs and all other educational programs in nursing as well as service agencies recruit faculty from the limited number of persons completing graduate study each year. Student recruitment for the program may be affected by the presence of diploma and baccalaureate nursing programs in the area. The community and future employers of the graduates must understand and accept the purposes of the associate degree in nursing.

Adequate finances must be assured if the program is to be a success. Special consideration should be given to the cost of employing faculty for planning the curriculum and physical facilities, and to the initial cost for library materials and other equipment.

A new program should be considered only where regional or State planning has indicated the need for additional nurses with this preparation. Before determining whether a new program should be established, a survey should be conducted which would evaluate the availability of patient care and other community health agency resources for student learning.

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[1] *Toward Quality in Nursing.* (Item 6, Selected Bibliography, ch. II, p. 17.)

If the requirements for a sound program can be met, the next step is to appoint the basic faculty. At a minimum, this faculty should include the program director and instructors in the major nursing areas. The director should be appointed at least 2 years and the faculty 6 months before the first students are admitted. This time interval is necessary to permit the establishment of community and college relationships and agreements. It is also essential that time be allowed for the director and the faculty to plan concurrently for educational and building programs.

The college must provide space for the department of nursing as for all other departments, both in the initial and the expansion phase of a program. Some of the facilities planned for nursing will be unique to nursing. In many instances, however, certain facilities such as classrooms may be available for overall scheduling by the college.

## Programing and Space Requirements

Before an adequate building program can be developed to provide the physical facilities needed to accommodate the curriculum, the architect should be given such information as: (1) the student enrollment; (2) the courses to be taught and the teaching methods used; and (3) space requirements for instruction, faculty and administrative offices, and supporting areas. This information should be set forth in a functional program developed by the building committee, assisted by the program director and the nursing faculty.

Space relationships for teaching, administration, supporting areas, and faculty are given in figure 3, p. 24.

The number of students to be admitted initially and anticipated expansion in enrollment will affect space planning. In associate degree programs, total student enrollment is based on annual increments of new admissions plus the number of second-year students registered.

### TEACHING SPACE

Programing for teaching space will require a projection of the curriculum and the schedule of classes to be taught each anticipated increase in admissions.

Clinical nursing courses should be scheduled so there will be no conflict with what has been determined as the most suitable hours for nursing practice. In many situations the morning hours may prove best for student practice in medical-surgical, pediatric, psychiatric, and obstetric nursing. In these instances, more classrooms may be needed for clinical nursing courses than for a general education class. These rooms may be available for scheduling for use by other groups in the college when not needed for nursing courses.

To provide flexibility for future expansion, it is recommended that: (1) lecture rooms be planned to accommodate the maximum enrollment projected; (2) schools which may be used as practice teaching centers by graduate programs in nursing provide seating for observers; (3) the number of smaller classrooms be sufficient to permit scheduling additional sections of a class as enrollments and faculty increase; and (4) the architectural design incorporate features which, when necessary, can be modified to accommodate future changes in the program and in teaching methods.

Teaching methods commonly used that will influence architectural planning include demonstration within the classroom and monitoring of demonstrations by closed-circuit television. The architect should be informed of plans for projection of films, video tapes and slides, and the use of tape recordings and other audiovisual aids.

The space requirements for various types of teaching space will be determined by the maximum size of the group that can be accommodated in using a specific teaching method.

The teaching methods and the educational media to be used will guide the architect in designing and providing for equipment in classrooms. Other factors to be considered in determining the number, size, and location of classrooms include: (1) the purpose for which the room is to be used; (2) the maximum number of students in any one class (possible dropouts are not considered in this computation); (3) the number and size of the sections into which classes in nursing may be divided; and (4) the availability of rooms at the optimum time for teaching.

Planning for teaching spaces must incorporate requirements for lecture-demonstration rooms, classrooms, multipurpose rooms, conference rooms, science laboratories, and libraries.

*Lecture-Demonstration Room.*—A large lecture-demonstration room, with fixed seating to accommodate at least the total class, will be needed. Demonstration space should be included.

*Classrooms.*—Teaching methods which include student participation require movable chairs so that seating arrangements can be improvised for small groups. Examples of such courses are the nursing care of medical, surgical, obstetrical, and pediatric patients.

*Multipurpose Room.*—Nursing care of patients requires that the student develop skill in caring for the patients and handling the equipment used for patient care. After demonstration by the instructor, the student may need independent practice of techniques to improve her skill in such things as positioning a patient and in maintaining asepsis by the use of gowns, gloves, and sterile instruments. The faculty may also wish to develop new equipment and test possible modifications in nursing procedures. This type of practice requires a room with hospital beds, a medicine preparation area, and utility and storage space.

Many associate degree programs are offered in localities where hospital beds, needed for student learning, may be rented for a short time (approximately 6 to 8 weeks). Other programs require space for storing beds and bedside tables when not in use. When large equipment is not required, this room may then be used for lectures or conferences.

If students are to change from street clothes to uniforms, dressing rooms and lockers should be provided.

*Conference Rooms.*—Conference space will be needed in the patient care areas of cooperating hospitals and health agencies and in the educational unit.

Students enrolled in clinical nursing courses will be assigned in small groups for patient care experience in medical, surgical, pediatric, psychiatric, and other care areas. Precare and postcare planning conferences are an integral part of this experience. These conferences are scheduled while the student is assigned to the patient care area—probably during the morning or early afternoon hours. The number of conference rooms needed will depend upon the number of small sections of each class assigned to the patient care area. For example, if there are 6 groups of students in medical-surgical nursing, 2 groups in psychiatric nursing, and 2 in maternity nursing, there might be 24 conferences scheduled in any one day. Where conference rooms are available for nursing service personnel, they may be used by nursing students during certain hours of the day. Or, if joint post-conferences of several groups of students are planned, a larger conference room may be needed.

If the college is close to the hospital or health agency, conference rooms in both the school and health facility should be available. If clinical facilities are a great distance from the school, the conferences will have to be scheduled in the patient care facility.

These conference rooms should provide for movable seating. Tape recording of conferences may require acoustical treatment. Televised demonstration of patient care will require monitoring sets.

*Science Laboratories.*—Nursing students attend courses in the physical, biological, and social sciences with other students enrolled in the college. Space for these courses will not be required in the nursing education unit. College administration will need to determine whether the present utilization of science laboratories will allow for expanded enrollments in nursing.

*Library.*—Professional nursing references and periodicals are added to the general library of the college. Library stacks and study space must be available to accommodate the anticipated enrollment in the nursing course.

## FACULTY SPACE

*Conference Room.*—A room for faculty meetings, conferences, and work groups is needed in the educational unit. The frequency of use will determine whether or not this space may be shared with other faculty groups.

*Offices.*—Privacy is a fundamental requirement for faculty offices. Each office should accommodate only one faculty member. If provision is made in each office for hanging coats and hats as well as for changing from street clothes to uniform, locker space in faculty lounges can be omitted.

Graduate students from colleges and universities who are preparing to teach in community college programs frequently obtain field practice in associate degree programs. Space will be required to accommodate from four to six practice teachers, each of whom should be provided desks.

### ADMINISTRATIVE SPACE

Administrative space includes offices for the director and her secretary. It also provides a lobby reception area for visitors and space for clerk-typists as well as for storing supplies. Provision for duplicating educational materials may be needed if this function is not centralized in the college.

Registration, admissions, student counseling, and student health services are provided by the general administration of the college. Space for these functions is not needed in the educational unit for nursing.

### SUPPORTING SPACE

Lounges for the faculty as well as for male and female students and visitors are required. Lockers for students may be placed in a central area or recessed in the corridor.

Space is essential for storage files and educational aids. Janitors' closets, mechanical equipment, vending machines, telephone booths, and drinking fountains also have space requirements.

### PATIENT CARE EXPERIENCE AREAS

A high proportion of the education for nursing takes place in patient care practice areas of hospitals and related health agencies. Superimposing an educational aim on the service aim of these agencies requires some space not usually found in hospitals without teaching programs. Space will be needed for conferences, reference materials, and teaching aids. Students and faculty require locker space. Provision for food service must be made if students and faculty are in the agency at mealtime.

### CONTINUING EDUCATION SPACE

Faculty members from associate degree programs cooperate with nursing organizations, local hospitals, and health agencies in developing and carrying out continuing education projects. Courses are offered for nurses returning to practice, and instruction is also given relating to new methods of patient care.

## PROFILE OF A DEPARTMENT OF NURSING IN A COMMUNITY COLLEGE

THE REMAINDER of this chapter presents a profile of a typical department of nursing in a community college, based on a composite picture of such facilities. This profile, offered as a guide, should be adapted to comply with each school's individual needs. Space relationships as developed for this program are shown in figure 3.

*Size of School.*—Space requirements have been prepared for a department of nursing in a community college admitting 64 students each year. Forty students remain at the end of the first year. The total enrollment is 104 students.

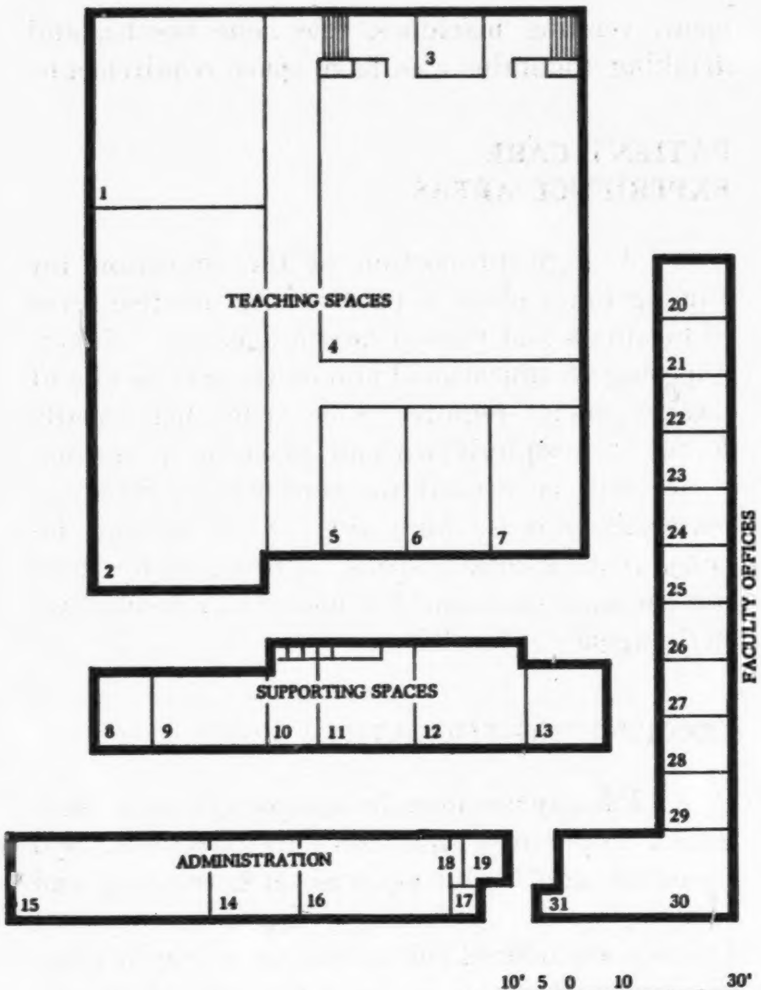
The faculty consists of a director and 10 full-time nurse instructors. There is one secretary for the director and three clerk-stenographers who serve the entire faculty.

## Space Requirements

### TEACHING SPACE

*Lecture-Demonstration Rooms.*—This program would require one lecture-demonstration room with fixed seating for the total student body of 104 students. This room is designed for film and slide projection. The schedule of classes places the nursing utilization of this room at approximately 10 percent. The room is therefore available for scheduling classes other than nursing.

*Classrooms.*—The students admitted each year will be divided into two sections for lecture and discussion of patient care. One classroom



**TEACHING SPACES**

1. CLASSROOM
2. MULTIPURPOSE DEMONSTRATION ROOM
3. PROJECTION ROOM
4. LECTURE DEMO. ROOM
5-7. STUDENTS' CONF.

**SUPPORTING SPACES**

8. UTILITY ROOM
9. STORAGE ROOM
10. MEN'S ROOM
11. WOMEN'S TOILETS
12. MECH. EQUIP. ROOM
13. A. & V. STORAGE ROOM

**ADMINISTRATION SPACES**

14. LOBBY
15. GENERAL OFFICE
16. DIRECTOR'S OFFICE
17. TOILET
18. CLOSET
19. JANITOR'S CLOSET

**FACULTY SPACES**

20-29. FACULTY OFFICES
30. FACULTY CONF. ROOM
31. COFFEE PREP. AREA

*Figure 3. Space relationships in an associate degree nursing program.*

with movable seats for 44 will accommodate 32 students in addition to observers such as practice teachers. This room will be in use approximately 50 percent of the schoolday.

*Multipurpose Room.*—A multipurpose room with space for eight adult beds will allow the first-year class to be divided into four sections for supervised laboratory practice. When the beds are not in use, the room will seat 64 students who may also use this room independently to practice techniques in caring for patients. Its availability for scheduling classes other than nursing is limited.

*Conference Rooms.*—Assignments to patient care practice in the hospitals and health agencies are made in groups of 8 to 10. Students from one or more similar patient care areas may be brought together for pre- and post-assignment conferences. The cooperating agencies should provide conference rooms for 16 people on each clinical service. Three conference rooms, each to accommodate 16 people either around a table or with movable seats, will be required in the educational unit.

*Library.*—This space is shared with the entire college and not required in the nursing educational unit.

*Science Laboratories.*—Science laboratories are shared with the entire college. They are not required in the nursing educational unit.

## FACULTY SPACE

Individual faculty offices for 10 nurse instructors will be required. A faculty conference room may be shared with other faculty groups. The conference room may include provision for coffee or tea service.

## ADMINISTRATIVE SPACE

The administrative area provides space for the director's office and a lobby reception room for students and visitors. Space to accommodate the director's secretary and three clerk-typists is included in the administrative area.

The administrative functions of admission, registration, student health, student counseling, recreation, and other student activities are shared with the total college and do not require space in the nursing educational unit.

## SUPPORTING SPACE

Supporting space includes provisions for storage of educational media such as anatomical models, films, and tape recorders; general office storage for files and supplies as well as for housekeeping and maintenance materials.

Lounges, lockers, toilets, and washrooms for faculty, students, and visitors also require space.

### CONTINUING EDUCATION SPACE

It is assumed that the multipurpose room in the associate degree program will be available for scheduling the lecture, demonstration, and practice required for short-term, noncredit courses.

As shown in table 6, the total net usable space for this program is estimated as follows:

| *Space* | *Square feet* |
|---|---|
| Teaching | 6, 120 |
| Faculty | 1, 580 |
| Administration | 840 |
| Supporting areas | 1, 300 |
| Total | 9, 840 |

## Annual Operating Budget

The projected annual operating budget for a 2-year associate degree nursing program[2] is based upon an analysis of nine existing associate degree programs projected to the program characteristics described below. Certain items, such as salaries and fringe benefits, are based upon past studies and may not reflect current rates for these items.

### PROGRAM CHARACTERISTICS

The program has been in operation for at least 2 years. In the year considered, 64 students entered the program; the total enrollment was 104.

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[2] See app. A, p. 78.

***Table 6. Space requirements for a 2-year associate degree program in community college with an entering class of 64 and a total enrollment of 104***

| Spaces | Nursing education area | | | Remarks |
|---|---|---|---|---|
| | Number of rooms | Group size, each room | Total net area (sq. ft.) | |
| Teaching | – | – | 6, 120 | |
| Lecture-demonstration room | 1 | 104 | 2, 300 | |
| Classrooms | 1 | 44 | 800 | |
| Conference rooms | 3 | 16 | 900 | Additional required in hospital. |
| Multipurpose room with storage and utility rooms | 1 | – | 2, 000 | 8 beds. |
| Storage—teaching aids | 1 | – | 120 | |
| Science laboratories | – | – | – | In the college. |
| Library | – | – | – | In the college. |
| Faculty | – | – | 1, 580 | |
| Offices | 10 | 1 | 1, 000 | |
| Conference room | 1 | 20 | 400 | |
| Lounge | – | – | – | In the college. |
| Washroom and toilets | – | – | 180 | |
| Administration | – | – | 840 | |
| Lobby-reception | 1 | – | 100 | |
| General office | 1 | – | 320 | |
| Secretary-receptionist | – | 1 | – | |
| Clerk-typists | – | 3 | – | |
| Storage area | 1 | – | 80 | |
| Duplicating area | – | – | – | In the college. |
| Director's office | 1 | 1 | 340 | With coat closet and toilet. |
| Registrar's office | – | – | – | In the college. |
| Admissions office | – | – | – | In the college. |
| Student counselor's office | – | – | – | In the college. |
| Students' health service | – | – | – | In the college. |
| Staff lounge—washroom and toilet | – | – | – | In the college. |
| Visitors' toilets: | | | | |
| Men | – | – | – | In the college. |
| Women | – | – | – | In the college. |

*Table 6.* ***Space requirements for a 2-year associate degree program in community college with an entering class of 64 and a total enrollment of 104—Continued***

| Spaces | Nursing education area<br>Number of rooms | <br>Group size, each room | <br>Total net area (sq. ft.) | Remarks |
|---|---|---|---|---|
| Supporting | – | – | 1, 300 | |
| Students' toilets | – | – | 420 | |
| Men's toilet | – | – | – | 1 watercloset, 1 lavatory, 1 urinal. |
| Women's toilets | – | – | – | 5 waterclosets, 5 lavatories. |
| Students' lounge | – | – | – | Located in college. |
| Lockers | – | – | 240 | 104 full-size lockers. (Additional may be needed in the hospital.) |
| Janitors' closets | 1 | – | 40 | Or as required. |
| Coat alcoves | – | – | – | As required. |
| Vending machines | – | – | – | As required. |
| Telephone booths | – | – | – | As required. |
| Drinking fountains | – | – | – | Minimum of 3—recessed or as required. |
| General storage | 1 | – | 600 | – |
| | | | 9, 840 | Net area. |
| | | | 6, 560 | For walls, partitions, corridors, stairs, and mechanical space. |
| | | | 16, 400 | Total gross area. |
| | | | 157. 7 | Area per enrolled student. |

The nursing department staff included the director, 10 faculty members, 1 secretary, and 3 clerk-typists.

The required credits were evenly divided between general education courses taught in the arts and sciences (or corresponding) departments of the junior college and nursing education subjects offered in the nursing department.

The probable annual operating costs to the community college for establishing the nursing program are shown in table 7.

## BUDGET COMPONENTS

*Arts and Sciences.*—Introduction of a nursing program into the junior college setting would extend the cost of general education (arts and sciences) credits as would increasing the number of students in any program that had half of the required credits in the area of general education.

*Nursing Department.*—In forecasting the nursing department's budget, necessary faculty and facilities were given primary considerations. The subcommittee's recommendations relating to the number of faculty needed and space requirements were used.

*Table 7.* ***Nursing program operating budget for the community college***

| Item | Total | General education costs | Nursing education costs |
|---|---|---|---|
| Total | $165,801 | $33,197 | $132,604 |
| Direct costs | 110,452 | 18,740 | 91, 712 |
| Salaries [1] | 104,821 | 16,821 | 88,000 |
| Supplies | 5,631 | 1,919 | 3,712 |
| Indirect costs | 55,349 | 14,457 | 40,892 |
| Staff benefits | 6,037 | 1,285 | 4,752 |
| Plant operation | 18,106 | 3,705 | 14 401 |
| General institutional administrative expense | 11,395 | 2,609 | 8,786 |
| Library | 8,407 | 2,835 | 5,572 |
| Student services | 11,404 | 4,023 | 7,381 |

[1] Salaries provide for nonnurse faculty and the following nursing department personnel: 1 director, 10 faculty members, 1 secretary, and 3 clerk-typists.

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3. **National League for Nursing. *Criteria for the Evaluation of Educational Programs in Nursing Leading to an Associate Degree*. New York. The League. 1962. 12 pp.**

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## *Chapter IV*

# Baccalaureate and Graduate Nursing Programs

IN 1962, some 178 private and tax-supported colleges and universities offered undergraduate programs in nursing leading to a baccalaureate degree. Master's degree programs in nursing were offered in 48 institutions. The majority of graduate students in nursing terminate their study at the master's level. However, an increasing number are electing to fulfill the requirements for the doctorate degree. More and more educational programs are recognizing their growing responsibility for continuing education.

## Characteristics of Programs

### APPROVAL AND ACCREDITATION

The appropriate State licensing authority must approve baccalaureate programs in nursing. This approval admits students to examination for licensure as registered nurses.

Programs organized within colleges or universities approved by the appropriate regional accrediting agency may request review for accreditation by the National League for Nursing of an undergraduate or graduate nursing program or both. National accreditation signifies fulfillment of criteria of excellence established by the profession.

### TYPES OF PROGRAMS

#### *Undergraduate Programs*

A nursing program leading to a baccalaureate degree is conducted by an educational unit in nursing (department, division, school, or college) that is an integral part of a college or university and is organized and controlled in the same way as other units in the institution.

The baccalaureate degree program is designed to serve the needs and purposes of persons who want (1) to learn and practice the humanistic and scientific bases for care of patients, (2) to prepare for nursing at the baccalaureate level, (3) to share with students preparing for other occupations all the general advantages of a college or university preparation, and (4) to acquire a baccalaureate education as a prerequisite for graduate study to prepare to practice in such specialties as teaching, administration, or research.

Graduates of baccalaureate programs are prepared for nursing positions in community health services and may advance without further formal education to positions, such as head nurse and team leader, which require administrative skills. Graduates also have a foundation for continuing personal and professional development and for graduate study in nursing.

Some graduates of associate degree and diploma programs in nursing may wish to fulfill requirements for a baccalaureate degree in nursing. Admission requirements vary with different colleges and universities.

#### *Graduate Programs*

Graduate programs in nursing provide preparation for clinical specialization, teaching, and administration in all types of educational programs. They also prepare for supervision and administration in nursing services, for consultation, and for research in nursing.

Graduate students in nursing must meet the university's requirements for admission to graduate study. In all such programs the faculty and students are engaged in research which is increasingly being supported by institutes and foundations. Some of the research is directed by faculty members who also have teaching responsibilities. Other research is conducted by personnel with full-time research responsibility but who may have graduate students as assistants.

To assure adequacy of nursing services, a larger number of nurses must be prepared for leadership roles, including positions on faculties of schools for professional and practical nursing, as supervisors and administrators of nursing services in hospitals and other health agencies, and in research.

Baccalaureate nursing education is the best basic preparation for nurses with leadership potential. Preparation for supervision, administration, teaching, clinical specialization, consultation, and research requires postbaccalaureate education in nursing as in other professional disciplines. Experience has demonstrated the importance of providing strong formal education in key areas of specialization. The challenging educational and scientific problems of nursing require rigorous academic training. The administration of nursing services within the framework of medical care programs requires graduate preparation for administration.

The need for advanced professional training for the teacher has become so well established at even the elementary school level that there would seem to be no question with respect to its importance for nursing educators.

Many public health nursing agencies need staff qualified in public health to provide community health services. They also need leadership personnel prepared at the graduate level to supervise and administer public health nursing programs. As of January 1964, programs accredited by the National League of Nursing include preparation for public health nursing.

Faculty in baccalaureate and graduate programs should meet the same academic requirements as other faculties in the college and universities. This would require a master's degree for junior faculty members and the doctoral degree for senior faculty, department heads, and deans.

### *Continuing Education*

Colleges and universities are looked upon as centers for continuing education for practitioners in nursing service and nursing education. The type of program offered may vary from those arranged for foreign or local visitors who come to the center for observation to short-term noncredit courses planned to meet the needs of a group of nurses in the area. Continuing education courses have been developed to improve skills in nursing care, to introduce new nursing techniques, to provide refresher courses for nurses returning to practice, and to improve teaching and administration in nursing schools and nursing service.

## NUMBER OF PROGRAMS AND STUDENTS

In 1962, some 23,000 full-time students were registered in the Nation's 178 baccalaureate degree programs. In addition, 129 programs admitted registered nurses from diploma and associate degree programs as candidates for the bachelor's degree.

In the same year, 48 programs, of which 33 are accredited by the National League for Nursing, offered master's degree programs in nursing. (See table 8.) The number of nurses receiving master's degrees each year is only about one-third of the 3,000 per year that the Surgeon General's Consultant Group estimated is needed.

As shown in table 8, approximately three-fifths of the registered nurse candidates for the baccalaureate degree and almost one-third of the candidates for the master's degree are enrolled for part-time study.

*Table 8. Enrollments and accreditation of baccalaureate and master's degree in nursing programs, fall 1963*

| STATUS | BACCALAUREATE DEGREE | | | | | | | | MASTER'S DEGREE | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Basic student | | | Registered nurse student | | | | | Number of programs | Enrollment | | | Percent |
| | Number of programs | Enrollment | Percent | Number of programs | Enrollment | | | Percent | | Full time | Part time | Total | |
| | | | | | Full time | Part time | Total | | | | | | |
| Total | 178 | 23, 656 | 100 | 129 | 3, 670 | 5, 262 | 8, 932 | 100 | 48 | 1, 717 | 757 | 2, 474 | 100 |
| Accredited | 119 | 19, 493 | 82. 4 | 69 | 3, 088 | 4, 213 | 7, 301 | 81. 7 | 33 | 1, 503 | 677 | 2, 180 | 88. 6 |
| Other | 59 | 4, 163 | 17. 6 | 60 | 582 | 1, 049 | 1, 631 | 18. 3 | 15 | 214 | 80 | 294 | 11. 4 |

Source: National League for Nursing.

# THE BACCALAUREATE PROGRAM

## Program Characteristics

### CURRICULUM

The curriculum and instruction in baccalaureate degree programs are planned to prepare graduates for practice as professional nurses. Without further preparation they may accept positions requiring beginning administrative skills. Baccalaureate programs lay the foundation for continuing professional and personal development and for graduate study in nursing.

Baccalaureate programs in nursing include liberal education from broad fields of knowledge; professionally related courses in the physical, biological, and behavioral sciences; and preparation for the professional practice of nursing. The liberal education and professionally related courses are taught by faculty from other departments of the college and university. In some colleges it will be necessary to introduce such courses as human anatomy, physiology, biochemistry, and microbiology if a new program is to be started. The enrollment of nursing students may affect space requirements in other departments of the college or university. The pressure of new programs for nursing or of increased enrollments is particularly felt in the sciences and related courses required for nursing as well as in the library.

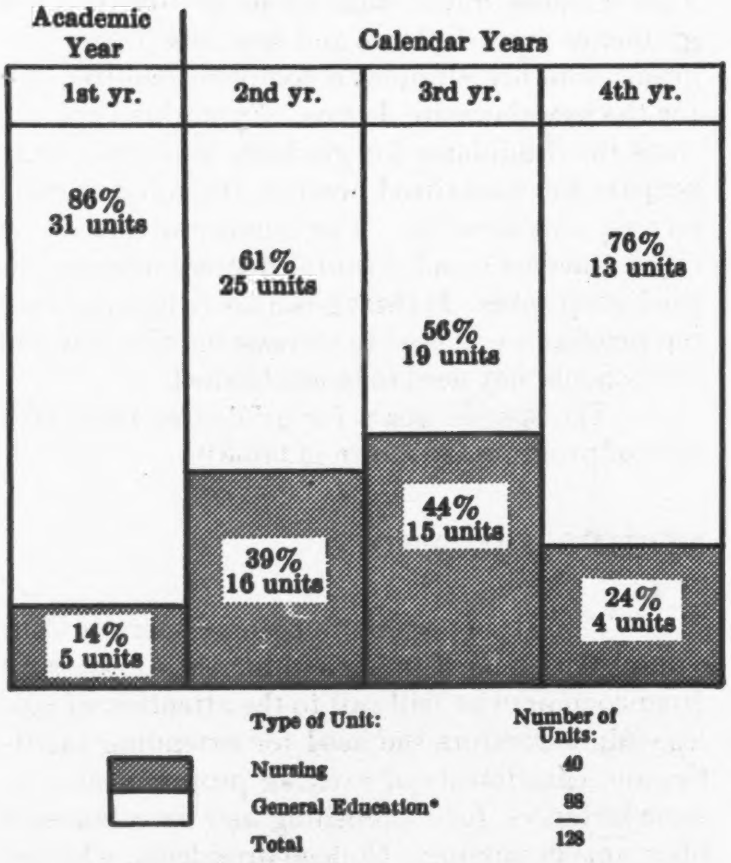
The curriculum is so organized that the courses from general education which are prerequisites to nursing practice, especially the sciences, precede the nursing courses or are offered concurrently. The major in nursing is usually concentrated in the last 2 years of the program.

Some schools admit students directly from high school to the nursing program; others require 1 or 2 years of prescribed college courses before the student is accepted into the nursing major. The admission requirements for the program and the location of the clinical facilities for patient care practice may influence the sequence of courses and the relationship between the general education and nursing courses in the curriculum. This is illustrated in figures 4 through 8.

### RESOURCES FOR PATIENT CARE EXPERIENCE

The nature of nursing makes it mandatory for students to have learning opportunities in several kinds of community agencies in which patients are seen and treated, in institutions where adults and children meet in groups, and in the homes of families where nursing care is being provided. All of these experiences require faculty supervision.

In some instances the nursing experience area may be at a great distance from the campus.

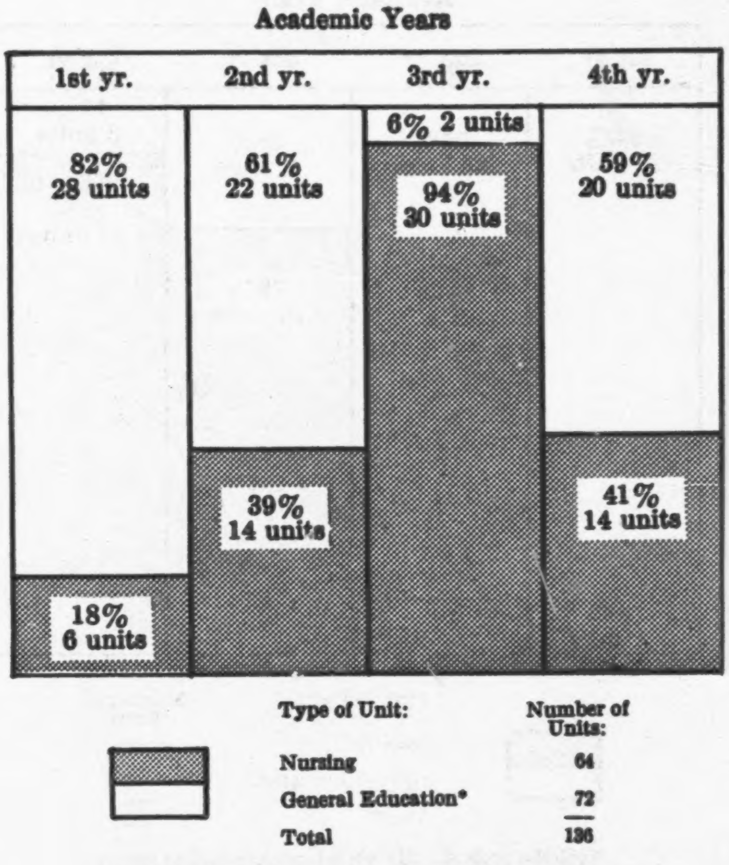


*Includes professionally related subjects such as sciences.

***Figure 4. A nursing program in a college. The division uses patient care facilities in five hospitals, day care centers, a children's home, and other health agencies.***

It is often necessary to use more than one hospital or health agency to obtain sufficient nursing care practice for the number of students to be admitted. Where facilities of another agency or institution are used, written agreements establishing mutual responsibilities are developed jointly and are subject to periodic review. These agreements specify the responsibility of the college to teach and supervise the students, select their learning opportunities, and be responsible for the quality of care the students give.

The hospital and health agency's responsibility includes time for nursing service personnel to plan with the faculty for student experience. Conference rooms, faculty space, lockers, lounges, and provision for food service requirements are included.[1]



*Includes professionally related subjects such as sciences.

***Figure 5. A nursing program located in a university. The first 2 years may be taken at either the university or at one of two State colleges located 200 and 450 miles from the university campus. Nurse faculty members from the university are assigned to each State college to teach the nursing courses. All students transfer to the university at the end of the sophomore year. This school uses three general hospitals, two Federal hospitals, the public schools, doctors' offices, and State and city health departments for student experience.***

## FACULTY

The faculty for a nursing unit in a college or university consists of those whose full responsibility is for teaching in the nursing major. The nature of nursing practice and education is such that the faculty-student ratio is much lower than in curricula where the safety and well-being of people are not considerations.

The location of the patient care areas, the need to utilize community resources to obtain student experience, and the need for close supervision of the student in patient care experience are

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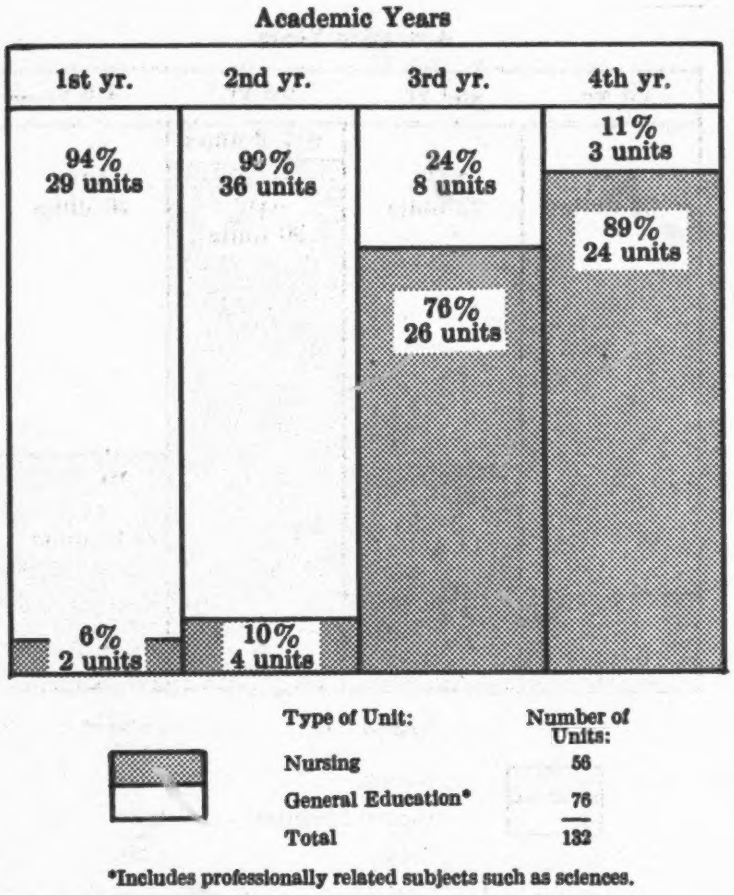
[1] National League for Nursing. ***Arrangements Between an Institution of Higher Education and a Hospital Concerning the Provision of Hospital Facilities for College Education in Nursing.*** (Item 6, Selected Bibliography, p. 48.)



*Includes professionally related subjects such as sciences.

*Figure 6. A nursing program in a university with a detached medical center campus. The first 2 years of the program are taken at the university campus for general studies. At the end of the sophomore year students transfer to the medical center campus. In addition to the medical center hospital, this school uses the resources of two State hospitals and one municipal tuberculosis center.*

some of the factors which influence the faculty-student ratio.

Additional faculty will be needed where members of the faculty are involved in curricular experimentation, community health projects, or research.

## Needs and Goals

To meet the Nation's growing health needs, the number of graduates from baccalaureate programs should be doubled by 1970, according to the Surgeon General's Consultant Group on Nursing.[2] This includes initial admissions as well as those graduates from diploma and associate degree programs who are eligible to complete requirements for the baccalaureate degree. From this pool will come the candidates for graduate study who may prepare for specialized practice, teaching, nursing service, and research. The number of nurses receiving master's and doctoral degrees must triple, the Group notes. If these goals are to be met, existing programs will need to increase enrollments and new schools may need to be established.

The specific goals for graduates from each type of program are shown in table 9.

### MEETING THE NEEDS[3]

The Report of the Surgeon General's Consultant Group on Nursing and increasing pressure from communities will call to the attention of college administrators the need for extending facilities and enrollments of existing programs and, in some instances, for establishing new baccalaureate programs in nursing. College presidents, who are now administratively responisble for nursing programs, know the need to attract qualified nurse faculty, to secure adequate clinical experience for students in hospitals and public health agencies, and of the costs of such programs. These same needs are not as well known to administrative groups which for the first time are concerned with determining whether it is advisable to establish a collegiate nursing program. It seems timely to recapitulate certain information regarding the educational picture in nursing which may be useful to groups that are contemplating the establishment of baccalaureate programs in nursing.

During the 6-year period, 1956–62, the number of baccalaureate nursing programs increased from 161 to 178, and the average enrollment in these programs increased from 116 to 132. On the surface, this increase in number of programs would appear most encouraging, since it comes at a time when more students, both men and women, are entering college than ever before. However, despite the increase in number and size of baccalaureate programs, there has not been a sufficient increase in the number of graduates from master's programs who are preparing for college teaching.

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[2] U.S. Department of Health, Education, and Welfare, Public Health Service. *Toward Quality in Nursing*, p. 22. (Item 6, Selected Bibliography, ch. II, p. 17.)

[3] This portion of the text through "Planning Considerations," p. 34, was prepared by the staff of the Department of Baccalaureate and Higher Degree Programs, National League for Nursing, New York.

***Table 9. Number of professional nurses in practice, educational level, in 1962 and the goals for 1970***

| Educational level | 1962 actual |  | 1970 goals |  |
|---|---|---|---|---|
|  | Number | Percent | Number | Percent |
| Total | 550,000 | 100.0 | 680,000 | 100.0 |
| Master's or higher degree | 11,500 | 2.1 | 25,000 | 3.7 |
| Baccalaureate degree | 43,500 | 7.9 | 95,000 | 14.0 |
| Diploma or associate degree | 495,000 | 90.0 | 560,000 | 82.3 |

Source: *Toward Quality in Nursing*, p. 22. (Item 6, Selected Bibliography, ch. II, p. 17.)

In the fall of 1962, enrollments in master's programs in nursing (both full-time and part-time students) totaled 2,472, while graduations from these programs totaled 1,098 for the academic year, 1961–62.[4] The dearth of candidates qualified for college teaching is reflected in statistics reported in January 1962 that showed only 4 percent of the nurse faculty members teaching in baccalaureate and higher degree programs held doctoral degrees, 76 percent held master's degrees, and 20 percent held baccalaureate degrees. These same programs reported 202 budgeted vacancies.[5]

In addition to the 192 baccalaureate and higher degree programs that were seeking to attract the graduates of master's programs in 1962, there were 886 diploma, 53 associate degree, and 693 practical nursing programs which were also bidding for these potential candidates. In the same year the budgeted vacancies in these other 3 types of programs totaled 1,202. Add to the needs of the schools, the demands for administrative and supervisory personnel of some 6,000 hospitals and 7,800 health agencies and boards of education and it can be readily seen that the college administrator must compete with a highly competitive market for a well-qualified faculty.

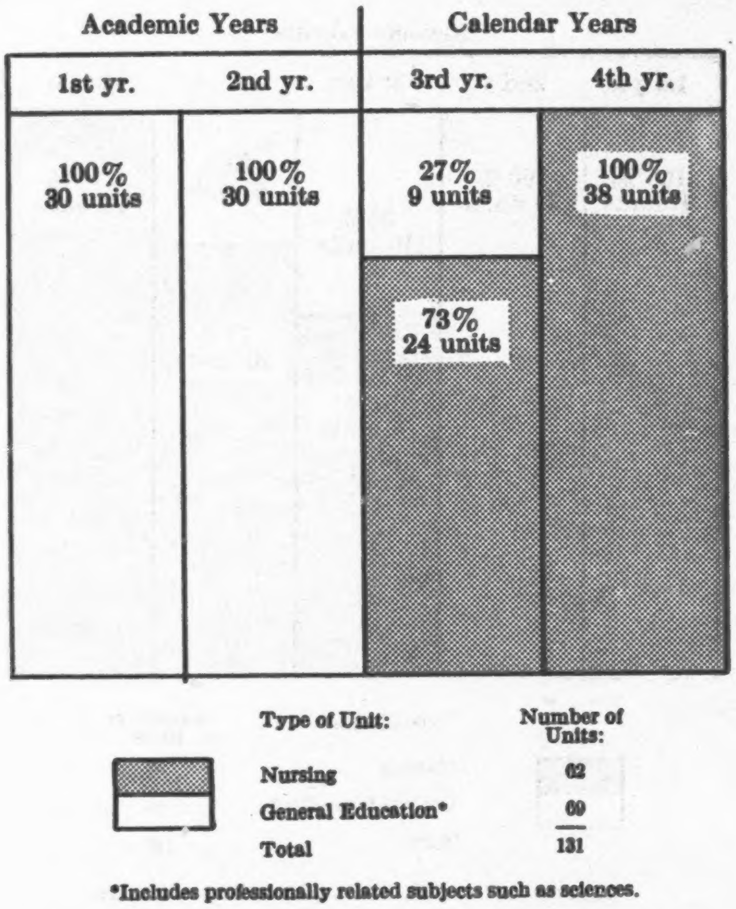

***Figure 7. A nursing program conducted by a university. This school requires four semesters of academic study for admission to the nursing program. General academic credit may be transferred from a junior or liberal arts college or another university. The nursing program is placed at the school of medicine campus and requires 2 calendar years for the nursing major.***

## RESPONSIBILITIES OF UNIVERSITIES

What are some of the responsibilities which should be assumed by a university offering a program in nursing education? The following excerpt from a paper by Margaret Bridgman[6] presents an apt description of some of these responsibilities:

> Some institutions in planning a new program have not been aware of certain essential conditions and have been quite naturally influenced by patterns in neighboring institutions. Hospital administrators, doctors, and directors of nursing also have been uninformed in many cases, and some of them have been prejudiced in favor of the "traditional" affiliation pattern. Yet college pro-

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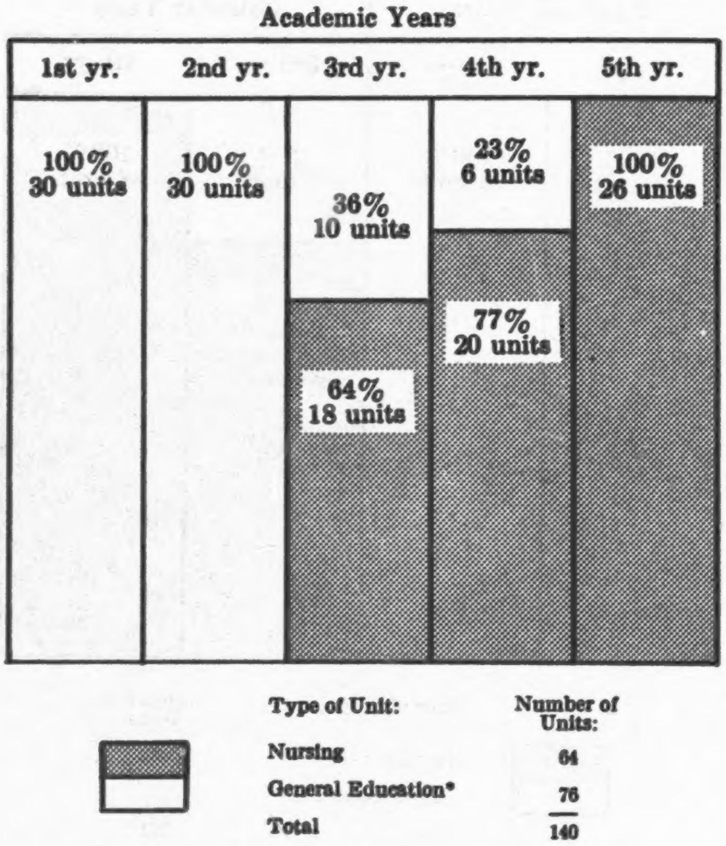
[4] *Some Statistics on Nursing Education—1962*, p. 2 (unpublished). The statistics presented in this report were collected by the Research and Studies Service of the NLN and supplement published annually in *Nursing Outlook*.

[5] From statistics collected by the NLN Research and Studies Service based on questionnaire responses from 180 of 192 (94 percent) baccalaureate and higher degree programs.

[6] Bridgman, Margaret. *The Development of Collegiate Education in Nursing in the United States*, p. 2. (Item 3, Selected Bibliography, p. 48.)



*Includes professionally related subjects such as sciences.

*Figure 8. A program in nursing located at a university medical center. This school of nursing requires 60 semester hours of general education for admission to the nursing major. The nursing major requires six academic semesters for completion.*

grams, concentrated upon education, do not provide extensive student service, though the faculty-student group makes valuable contributions to the hospital. Students do not earn their way because they receive more value in education than they give in service, and faculty guidance has played a very large part in their contribution. It is logical, therefore, that students in these programs should pay the same tuition as other students in the educational institution and meet their own living expenses, and also that they should share in all the benefits of college services and college life and associations.

The essential conditions an institution of higher education should be assured of meeting before it undertakes the responsibility of offering this type of professional education may be briefly outlined as follows:

Recognition of nursing as a subject comparable to others that are established as college majors and realization that it must be developed in the same way to justify a degree and give students the benefits they have a right to expect from college education for their chosen profession.

Recognition of the need to produce graduates really competent for the functions for which college-educated nurses are so urgently needed.

Establishment of an educational unit in nursing in the institution on a completely equal basis with other units of the institution, with a faculty adequate in number and well qualified in the various special types of nursing to teach all the courses in nursing including faculty-guided clinical practice. A minimum number of faculty members is six, with specialists, respectively, in medical, surgical, obstetric, pediatric, psychiatric, and public health nursing.

Provision for the necessary facilities for education: classrooms, faculty offices, and library.

Provision of housing and all other student personnel services required for college students.

Provision of available and accessible hospital and other agency facilities for the practice of nursing, since it is here that faculty help students to develop professional skills and to use pertinent knowledge from all preceding academic and professional sources.

In other words, a university needs to accept the same responsibility for this type of education as for any other in which it undertakes to provide the kind, level, and quality of preparation characteristic of the institution and represented by its degree.

## PLANNING CONSIDERATIONS

In surveying resources and estimating the costs of establishing a nursing program, the college administrator might well ask the following questions with respect to student potential, faculty personnel, and physical facilities:

1. What is the student potential of women and men who are intellectually able and interested in professional education for nursing?
2. What new preprofessional courses must be offered? (Human physiology, anatomy, etc.)
3. What additional faculty and facilities (both classroom and laboratories) will be needed to accommodate $x$ number of students in the liberal arts and preprofessional courses (history, humanities, mathematics, psychology, chemistry, nutrition, etc.)?
4. What staffing will be required to provide personnel services such as counseling, admission, health, housing, food, and recreation?
5. What additional library facilities and staffing will be needed to accommodate $x$ number of students and faculty?
6. What additions or changes in the physical plant will be needed to provide the nursing program with an administrative unit, faculty offices, conference or seminar rooms, special classrooms, laboratories, or demonstration units in accordance with the educational specifications of the program?
7. How many faculty members will be needed initially to develop the curriculum and im-

plement the program? How many additional faculty members will be needed to provide adequate instruction for the increased enrollments anticipated after the first 2 or 3 years?

8. What are potential resources for candidates for the deanship and other nurse faculty positions?

9. What financial resources will be needed to support a qualified faculty with salaries comparable to those in other schools?

10. How are special, yet recurring budget items, such as cost of accreditation, periodic requirement for the faculty to travel to professional meetings, and student transportation to the clinical areas, to be met?

11. What clinical resources are available within the community? What types of student experience must be obtained elsewhere and how will this affect the scheduling of classes?

Valuable assistance can be obtained from other administrators and from nursing consultants in answering the above questions.

### NEW SCHOOLS

A new school should be considered when regional educational or State nursing surveys indicate the need for additional baccalaureate degree programs. For graduate study, regional planning should indicate the desirability of coordinated action on a broad geographic basis to establish one or more centers within a region. Universities with medical centers provide the major requirements for graduate study in the health sciences including nursing.

A qualified nurse consultant may be employed to survey and evaluate the availability of clinical and other community health agency resources for student learning.[7] The State boards of nursing can advise as to the requirements the program must fulfill to qualify for State approval. The National League for Nursing administers the program for national accreditation of nursing programs.

Where coordinated planning results in the recommendation for the establishment of a nursing program in a college or university, the next step is to obtain administrative approval and support and to appoint the basic faculty. The basic minimum faculty for the program will be the dean and the professors in the major nursing areas. The dean should be appointed *at least 2 years* before the first students are admitted to the nursing courses. This time interval will permit the establishment of interagency relationships and agreements, and allow curriculum and functional planning for the building program to proceed concurrently.

The curriculum for the nursing program is the basis for the development of functional planning to guide the architect in developing the building program. Architectural planning will require at least 6 months, and 1 year should be allowed for construction of the proposed educational facilities.

## Programing and Space Requirements

Before the architect will be able to develop a building program which provides adequate physical facilities, he must be provided with such essential information as: (1) the enrollment; (2) educational program; and (3) space requirements for instruction, research, faculty and administrative offices, and supporting areas. This information should be set forth in a written program.

Many colleges and universities have established building committees within the central administrative office. A committee for planning nursing education facilities must be established if no overall committee has been formed.

Subcommittees from major departments of the school submit recommendations to the planning committee for space and equipment requirements to meet their particular needs. Consultation with representatives of other educational units with whom they may share space is essential. This would include auditoriums and facilities for continuing education.

The dean and the faculty will develop an immediate and long-range program for nursing within the college or university. This will include an estimate of the immediate enrollment and a careful consideration of the projected enrollment in each existing program within a specified time period (20 years with periodic revision every 5 years). Curricular space requirements are affected by organization, the size of classes for different teaching methods, and the use of educational aids such as films, televised projection and monitoring, and the number and availability of conference rooms in the inpatient areas.

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[7] Lists of qualified consultants are available from the National League for Nursing, the U.S. Public Health Service, the Western Interstate Commission for Higher Education (WICHE), and the Southern Regional Educational Board (SREB).

To provide for future expansion, it is recommended that: (1) lecture rooms be planned to accommodate the maximum enrollments projected; (2) seating for observers of the teaching process be planned (these may be graduate students or visitors); (3) the architectural design and engineering incorporate features which, when necessary, can be modified to accommodate future changes in the program and in teaching methods.

In most instances, at least 2 or 3 years will elapse between the time planning for construction begins and a new building may be ready for occupancy. If in a new school students are to be enrolled in nursing courses as freshmen, available classrooms on campus will need to be modified to permit patient care demonstration by the faculty and practice by the student. Otherwise the admission of students will have to be delayed until the new facility is ready.

The building committee should visit other schools as a team rather than individually to evaluate new educational facilities and practice. Other health disciplines using new educational media that are adaptable to nursing instruction should also be visited. In this way facilities will be observed and evaluated from different points of view. New programs which may not have appointed the basic faculty may need consultation from nurse faculty in other programs.

The functional program developed by the building committee will contain the specifications for teaching, research, faculty, administrative and supporting space necessary to carry out the educational program.

## TEACHING SPACE

The types of teaching space to be provided include lecture, class and conference rooms, multipurpose rooms, laboratories, and libraries.

The number and size of different types of classrooms for nursing courses are determined by a projection of class schedules to ascertain the frequency of room use. This projection should be based on the largest anticipated enrollment. It is necessary to determine the size of the group that can be taught by various teaching methods.

The scheduling of classes for clinical nursing courses will be determined by the most suitable hours for clinical nursing practice. In many situations the morning hours may prove to be the best hours for student experiences. It would then be necessary to schedule lectures in the afternoon. In these instances, the total number of classrooms required may be greater for clinical nursing courses than for courses which can be scheduled throughout the day. With effective scheduling procedures, these rooms may be made available for other college classes, thereby increasing their utilization.

*Lecture-Demonstration Room.*—One or more rooms with fixed seats for students and with space for patient care demonstration to accommodate the maximum annual admission should be planned. In programs where graduate students may be having practice teaching experience, where foreign and local visitors for observation are expected, or where observation for evaluation of curriculum experimentation is anticipated, it will be necessary to provide a lecture-demonstration room adequate to seat the total class, plus an additional 20 percent.

*Classrooms.*—Where student participation is expected as a part of the teaching method, smaller classrooms with movable seating will be needed. The faculty should determine the maximum number of students who can participate effectively.

*Multipurpose Laboratory (Teaching-Learning Laboratory).*—Nursing care that requires manipulative skills is learned through practice in teaching and learning laboratories that simulate the patient care areas of hospitals. These laboratories are also used to acquire greater understanding of the nurse-patient relationship.

*Conference Rooms.*—Conference space will be needed in the patient care areas of cooperating hospitals and health agencies and in the educational unit.

Students enrolled in clinical nursing courses will be assigned in small groups for nursing practice in the agency. Precare and postcare planning conferences are an integral part of this experience. These conferences are scheduled while the student is assigned to the patient care area—probably during the morning or early afternoon hours. The number of conference rooms needed will depend upon the number of sections for each class. For example, if there are 6 groups of students in medical-surgical nursing, 2 groups in psychiatric nursing, 2 in maternity nursing, and 2 in pediatric nursing, there might be 24 conferences to be scheduled in any one day. Where nursing service conference rooms are available on patient units, there are certain hours of the day when they might be available for conferences with nursing students.

In addition to conference space in the patient care areas, students and faculty will have scheduled and unscheduled conferences in the educational unit.

*Science Laboratories.*—Since science requirements for the nursing program are taken with other college or university students, such space is not required in the nursing education unit. The university administration will need to determine whether science classrooms and laboratories will need to be expanded to accommodate the projected increase in enrollments.

*Libraries.*—Library materials for nursing will be added to the central library complex of the college and university. Nursing students require access to reference materials from the humanities, the physical, biological, and social sciences as well as professional materials.

Library resources must be available to the student at the site of the educational unit and at the site of patient care practice. If patient care is obtained at centers remote from the campus, it will be necessary to duplicate library materials and provide for their transportation.

*Teaching Aids.*—Programed educational aids, either textbooks or materials for machine use and the machines for programed learning, may be stored with other library materials where they may be accessible to the total student body. In some instances, separate storage for movable teaching aids will be needed adjacent to the areas where they are to be used.

## FACULTY SPACE

The faculty space will include offices, conference rooms, research space, lounges, toilets, and locker rooms.

*Offices.*—Office space for the total anticipated faculty should be planned and constructed as a part of new educational units. If such planning is not done when the program and faculty expands, it may be necessary to convert costly classroom or laboratory space to offices.

Patient care planning and professional counseling of students requires frequent private conferences between the student and her instructor. For this reason, an office should be planned for each faculty member. Staff should have ready accessibility to secretarial services.

As a planning factor for undergraduate programs, it is recommended that at least a ratio of 1 faculty to 9 students be used. This ratio is not intended to indicate that within the patient care practice area 1 faculty member will supervise 9 students at a given time in patient care experience. She may demonstrate nursing care to one student or a group of students as she may have two or more groups of students needing supervision.

When there are graduate assistants or field practice students, office space will be required.

*Conference Rooms.*—A conference room is needed for faculty meetings, group projects, and meetings with representatives from community agencies. This room should have provision for serving refreshments.

*Research Space.*—If faculty members are expected to engage in research, appropriate space and laboratories must be provided for experimentation in nursing practices, teaching methodologies, administrative processes, and biological and/or sociological research.

*Lounge and Locker Space.*—Faculty lounges may be shared with other faculty groups in a multiple-use building. In other instances, a lounge for the nursing school faculty will be needed. Lockers and space for changing from street clothes to uniform will be required.

## ADMINISTRATIVE SPACE

The educational unit in nursing in a college or university is directed by a nurse responsible for the academic administration of the program. An administrative assistant is frequently responsible for fiscal matters and such nonacademic administrative functions as supervision of clerical staff, and supply and equipment control.

The administrative area, in addition to the office for the dean and her assistants, includes the lobby-reception area, general offices for secretaries and clerk-typists (including those for faculty and administrative personnel), files, and office supply storage space. Adequate secretarial space should be provided. Secretaries for the faculty should be in the ratio of 1 secretary to 3 to 6 faculty members (1:3–6). The number of secretaries required will depend upon the nature of the instructional research loads and publications by the faculty.

Student affairs administration, which includes admissions, registrations, counseling, and student health, are functions shared by other departments of the college and university. Space for such activities needed only by the nursing school should be provided.

Administrative staff will require lounge, locker, and toilet space. Male and female visitors' washrooms and toilets are usually in the administrative area.

### SUPPORTING SPACE

Supporting space will include student lockers, lounges, and toilets. In addition, workspace will be needed for duplicating, housekeeping, maintenance, and mechanical equipment. Vending machines, telephone booths, and drinking fountains may be recessed in corridors.

### CONTINUING EDUCATION SPACE

Noncredit workshops and refresher courses may be scheduled for 1 or more days or may be for 1 or more weeks. They usually require space for the total day. It is difficult to schedule such programs in the rooms regularly used by full-time students.

This type of program needs space where the total group can be brought together for lecture as well as rooms where the group can be divided into small work or discussion groups. An assembly-type room with lounge space for on-the-spot registration of participants is desirable. To accommodate small conference groups, the assembly room may be divided with folding partitions of sound-retardant construction or separate conference rooms may be provided.

This type of space is frequently shared with other groups in the college or university. If a large-scale program of continuing education is planned, an office for the director will be needed.

### RESOURCES FOR PATIENT CARE EXPERIENCE

Hospitals and health agencies which accept nurse students for patient care experience need to provide space for educational functions that are not required in the nonteaching agencies.

Conference rooms in patient care areas of hospitals and health agencies should provide space for patient care demonstration and patient teaching. Some of these units should be equipped for television projection and for monitoring with one-way viewing screens. Faculty office space, lockers, and space in which faculty and students can change from their street clothes will be needed if the hospital is at a distance from the educational unit.

Students and faculty may utilize the food service of the hospital when assigned for patient care practice.

## PROFILE OF A BACCALAUREATE PROGRAM

THE REMAINDER of this chapter presents a profile of a typical nursing program in a liberal arts college, based on a composite picture of such facilities. This profile, offered as a guide, should be adapted in accordance with a school's individual needs.

*Size of School.*—Space requirements and an operating budget have been prepared for a department of nursing in a college admitting 96 students each year. The total enrollment is 240 students, based on a 37.5-percent attrition rate.

The faculty consists of a dean and 27 full-time nurse instructors. There are nine clerk-typists who serve the faculty and one secretary to the dean. If the faculty is engaged in research or if continuing education is contemplated, additional faculty and stenographers will be needed.

# SPACE REQUIREMENTS

## TEACHING SPACE

*Lecture-Demonstration Rooms.*—The program planned for this school requires two lecture-demonstration rooms, each seating the total entering class. An additional 25 percent space allotment should be made for visitors or expanding enrollments.

*Classrooms.*—The students admitted each year will be divided into 2 sections of 48 each for lecture with demonstration of patient care. These rooms have also been planned for a 25-percent additional seating capacity.

*Multipurpose Room.*—One multipurpose room with 8 beds has been planned for a section of 16 students. Storage and utility space is provided.

*Observation Room.*—Where graduate students from higher degree programs obtain experience in practice teaching, an observation room adjacent to the multipurpose room facilitates observation of the teaching process.

*Conference Rooms.*—Six conference rooms with movable chairs to accommodate 20–25 students are planned in the nursing education unit. Oversizing of these rooms permits their use for small groups in informal seating arrangements or larger groups where less student participation is expected.

*Science Laboratories.*—The total requirements for the nursing degree consist of nursing courses, liberal education, and professionally related sciences; e.g., physical, biological, and social sciences. Since science courses are shared with the total college, laboratory facilities are not required in the nursing education unit.

*Library.*—The college library has sufficient space to add the professional books and journals for nursing as well as the study space for the additional students who will be enrolled in nursing.

*Reference-Reading Room.*—A reference-reading room for current periodicals and pamphlets has been provided to accommodate 16 persons within the nursing educational unit.

## FACULTY SPACE

Individual offices for 27 full-time faculty members and 1 office with desks for 4 graduate assistants are provided. Also included are a faculty conference room and a lounge. Research space is planned in accordance with the faculty research activities.

## ADMINISTRATIVE SPACE

The administrative space includes a lobby reception room, general office for nine clerk-typists, one of whom acts as general receptionist. It also includes general storage and duplicating space and toilets for men and women visitors.

A private office for the dean with adjacent space for her secretary is included.

## SUPPORTING SPACE

The supporting area includes space for student lounges and lockers, toilets, janitors' closets, and storage rooms.

## PATIENT CARE EXPERIENCE AREA

The college has administrative agreements with three general and two special hospitals, and two public health agencies for student experience in patient care. The hospitals and health agencies are geographically close to the college.

Each patient care area used for teaching students in the hospitals has a nursing service conference room which is shared by nursing education. One general hospital and one specialized hospital have demonstration units equipped with television cameras and one-way viewing screens. The conference space accommodates reference materials and other teaching aids.

Within the agencies providing patient care experience, lockers and provision for food service are available for the use of students and faculty when they are in the agency.

## CONTINUING EDUCATION SPACE

The school of nursing conducts three noncredit courses, each of 3 weeks' duration, for faculty of other schools in the area to improve teaching methods. Two courses of 2 weeks each are given to nursing service personnel from hospitals to improve supervisory techniques. These courses require a lecture room for the total group and space for group conference. At least three courses of 1 week each are given either as refresher courses in patient care or to teach new methods of patient care. The latter requires lecture, a demonstration, and practice in the multipurpose demonstration room and in the patient care units of the cooperating hospitals.

Table 10 indicates the number of rooms, the size of group accommodated, and the space requirements of the facilities planned for the program admitting 96 students each year. Figure 9 shows space relationship for this program and includes space for a graduate program.

As shown in table 10, the total net usable space for this program is estimated as follows:

| *Space* | *Square feet* |
|---|---|
| Teaching | 14, 064 |
| Faculty (including research) | 3, 980 |
| Administration | 1, 500 |
| Supporting area | 1, 940 |
| Continuing education | 2, 560 |
| Total | 24, 044 |

***Table 10.** Space requirements for a 4-year basic baccalaureate nursing program with an entering class of 96 and a total enrollment of 240*

| Spaces | Nursing education area: Number of rooms | Group size, each room | Total net area (sq. ft.) | Remarks |
|---|---|---|---|---|
| **Teaching** | – | – | 14, 064 | |
| Lecture-demonstration rooms | 2 | 120 | 4, 608 | |
| Classrooms | 2 | 60 | 2, 200 | |
| Conference rooms | 6 | 25 | 3, 696 | Additional required in the hospital. |
| Multipurpose room with storage, utility, and observation rooms | 1 | – | 3, 000 | 8 beds. |
| Science laboratories | – | – | – | In the college. |
| Storage-teaching aids | 1 | – | 160 | |
| Reference reading room | 1 | 16 | 400 | |
| Library | – | – | – | In the college. |
| **Faculty** | – | – | 3, 980 | |
| Offices | 27 | 1 | 2, 700 | |
| Research space added | – | – | – | Depending on the program. |
| Graduate assistants' office | 1 | 4 | 240 | |
| Conference room | 1 | 40 | 720 | |
| Lounge | 1 | – | 320 | Shared with administrative staff—with 5 lockers. |
| **Administration** | – | – | 1, 500 | |
| Lobby-reception | 1 | – | 100 | |
| General office | 1 | 9 | 720 | |
| Secretary-receptionist. | | | | |
| Clerk-typists. | | | | |
| Storage area | 1 | – | 80 | |
| Duplicating area | 1 | – | 80 | |
| Dean's office | 1 | – | 340 | With coat closet and toilet. |
| Dean's secretary's office | 1 | 1 | 100 | |
| Registrar's office | – | – | – | In the college. |
| Admissions office | – | – | – | In the college. |
| Student counselor's office | – | – | – | In the college. |
| Students' health center | – | – | – | In the college. |
| Visitors' toilets: | | | | |
| Men | – | – | 40 | 1 watercloset, 1 lavatory. |
| Women | – | – | 40 | 1 watercloset, 1 lavatory. |

*Table 10. Space requirements for a 4-year basic baccalaureate nursing program with an entering class of 96 and a total enrollment of 240*—Continued

| Spaces | Nursing education area | | | Remarks |
|---|---|---|---|---|
| | Number of rooms | Group size, each room | Total net area (sq. ft.) | |
| Supporting | – | – | 1,940 | |
| Students' toilets | – | – | 660 | 1 lavatory. |
| Men | 1 | – | – | 1 watercloset; 1 urinal. |
| Women | 2 | – | – | 13 waterclosets; 13 lavatories. |
| Students' lounge | – | – | – | In the college. |
| Lockers | – | – | 600 | 250 full-size lockers or as required. |
| Janitors' closets | 2 | – | 80 | As required. |
| Coat alcoves | – | – | – | As required. |
| Vending machines | – | – | – | As required. |
| Telephone booths | – | – | – | As required. |
| Drinking fountains | – | – | – | Minimum of 7—recessed or as required. |
| General storage | 1 | – | 600 | |
| Continuing education | – | – | 2,560 | |
| Assembly room | 1 | 100 | 1,600 | Folding partitions to divide the room into 4 spaces (optional). |
| Conference room | – | – | – | Optional. |
| Lounge and reception area | – | – | 700 | |
| Toilets: | | | | |
| Men | 1 | – | 130 | 1 watercloset; 1 urinal; 1 lavatory. |
| Women | 1 | – | 130 | 1 watercloset; 2 lavatories. |
| Drinking fountains | – | – | – | |
| | | | 24,044 | Total net area. |
| | | | 16,029 | For walls, partitions, corridors, stairs, and mechanical space. |
| | | | 40,073 | Total gross area. |
| | | | 166.97 | Area per enrolled student, approximately 167 sq. ft. |

## Annual Operating Budget [8]

### PROGRAM CHARACTERISTICS

The program has been in operation for at least 4 years. This year 96 students entered the program; the total enrollment was 240. The nursing department staff consisted of the dean, 27 faculty members, 1 secretary, and 9 clerk-typists. The number of credits required were equally divided between general education and professional education; therefore the arts and sciences department of the college or university and the nursing department offered the same number of credits.

### COMPONENTS OF OPERATING BUDGET

*Arts and Sciences.*—Introducing a nursing program into the college setting would increase the cost of arts and sciences instruction, since the student would be required to have credits in this area also. The cost of the nursing department should be considered in light of the particular requirements of 4-year baccalaureate programs in nursing. Because of these considerations, the proposed arts and sciences portion of the nursing program

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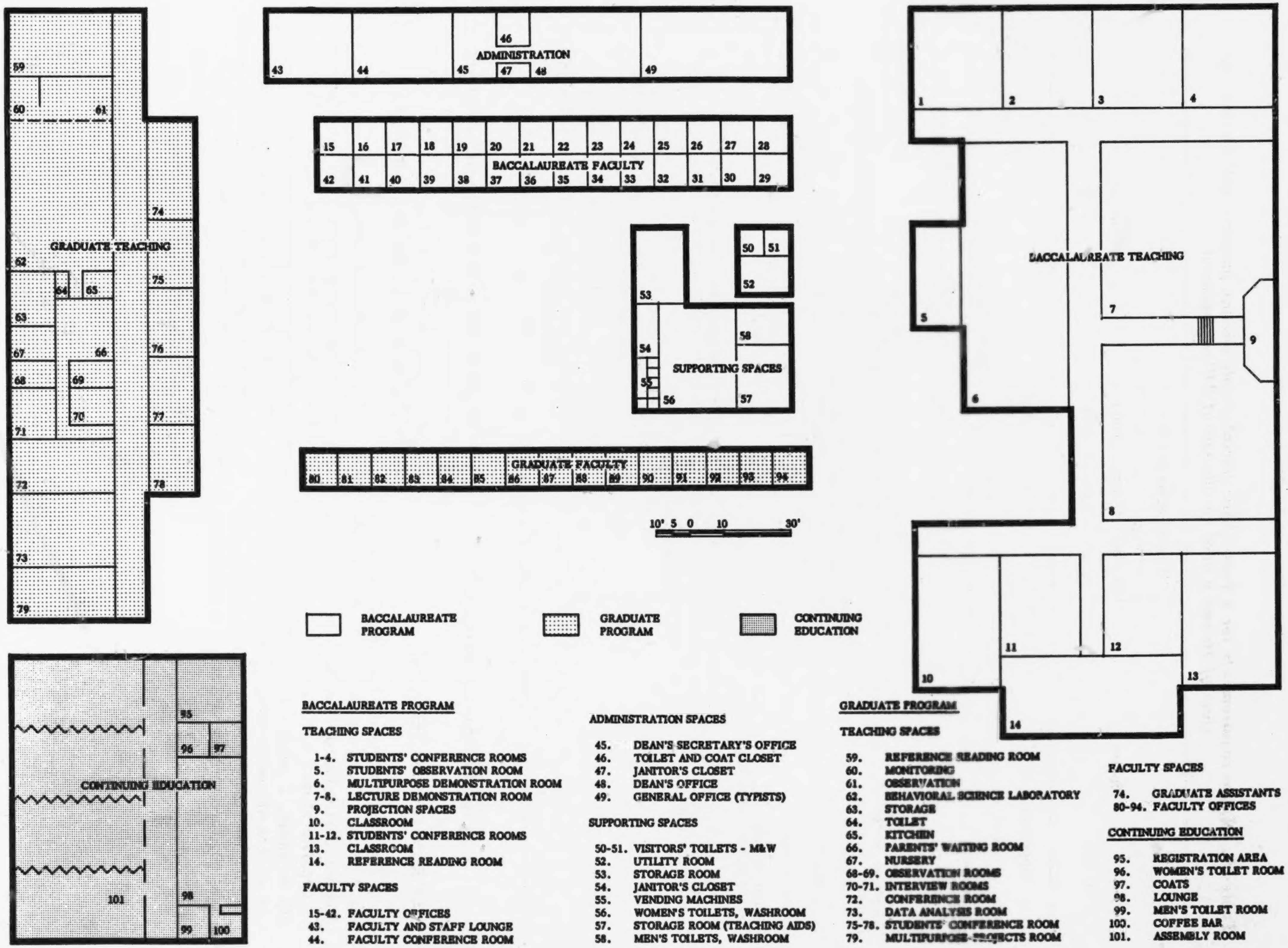
[8] See app. A, p. 78.


GRADUATE TEACHING
ADMINISTRATION
BACCALAUREATE FACULTY
SUPPORTING SPACES
GRADUATE FACULTY
BACCALAUREATE TEACHING
CONTINUING EDUCATION
10' 5 0 10 30'
BACCALAUREATE PROGRAM
GRADUATE PROGRAM
CONTINUING EDUCATION

BACCALAUREATE PROGRAM

TEACHING SPACES

1-4. STUDENTS' CONFERENCE ROOMS
5. STUDENTS' OBSERVATION ROOM
6. MULTIPURPOSE DEMONSTRATION ROOM
7-8. LECTURE DEMONSTRATION ROOM
9. PROJECTION SPACES
10. CLASSROOM
11-12. STUDENTS' CONFERENCE ROOMS
13. CLASSROOM
14. REFERENCE READING ROOM

FACULTY SPACES

15-42. FACULTY OFFICES
43. FACULTY AND STAFF LOUNGE
44. FACULTY CONFERENCE ROOM

ADMINISTRATION SPACES

45. DEAN'S SECRETARY'S OFFICE
46. TOILET AND COAT CLOSET
47. JANITOR'S CLOSET
48. DEAN'S OFFICE
49. GENERAL OFFICE (TYPISTS)

SUPPORTING SPACES

50-51. VISITORS' TOILETS - M&W
52. UTILITY ROOM
53. STORAGE ROOM
54. JANITOR'S CLOSET
55. VENDING MACHINES
56. WOMEN'S TOILETS, WASHROOM
57. STORAGE ROOM (TEACHING AIDS)
58. MEN'S TOILETS, WASHROOM

GRADUATE PROGRAM

TEACHING SPACES

59. REFERENCE READING ROOM
60. MONITORING
61. OBSERVATION
62. BEHAVIORAL SCIENCE LABORATORY
63. STORAGE
64. TOILET
65. KITCHEN
66. PARENTS' WAITING ROOM
67. NURSERY
68-69. OBSERVATION ROOMS
70-71. INTERVIEW ROOMS
72. CONFERENCE ROOM
73. DATA ANALYSIS ROOM
75-78. STUDENTS' CONFERENCE ROOM
79. MULTIPURPOSE-PROJECTS ROOM

FACULTY SPACES

74. GRADUATE ASSISTANTS
80-94. FACULTY OFFICES

CONTINUING EDUCATION

95. REGISTRATION AREA
96. WOMEN'S TOILET ROOM
97. COATS
98. LOUNGE
99. MEN'S TOILET ROOM
100. COFFEE BAR
101. ASSEMBLY ROOM

*Figure 9. Space relationships in baccalaureate, graduate, and continuing education programs.*

budget is based upon the additional credit hours of arts and sciences.

*Nursing Department.*—In forecasting this budget, primary consideration was given to the necessary faculty and facilities that would be adequate for such a program. For instance, the nursing faculty includes professors who accompany and instruct the students in all areas. A combination of all of these factors indicates the probable annual increase in operating costs to the institution for all areas of instruction for the students in the nursing program.

This budget, shown in table 11, is based upon an analysis of existing baccalaureate degree programs projected to the program characteristics described. Sufficient salaries were budgeted to cover the recommended number of faculty members. Certain items, such as salaries and fringe benefits, are based on studies conducted from 1958–62. For a more precise estimate, current rates should be substituted for these items.

***Table 11. Proposed annual operating budget for a baccalaureate nursing program with an entering class of 96 and a total enrollment of 240***

| Item | Total | Arts and sciences costs | Nursing department costs |
|---|---|---|---|
| Total | $413, 691 | $106, 852 | $306, 839 |
| Direct costs | 290, 102 | 72, 549 | 217, 553 |
| Salaries[1] | 274, 178 | 67, 778 | 206, 400 |
| Supplies | 15, 924 | 4, 771 | 11, 153 |
| Indirect costs | 123, 589 | 34, 303 | 89, 286 |
| Staff benefits | 11, 161 | 3, 807 | 7, 354 |
| Plant operation | 39, 407 | 7, 304 | 32, 103 |
| General institutional administrative expense | 22, 594 | 6, 546 | 16, 048 |
| Library | 25, 736 | 9, 182 | 16, 554 |
| Student services | 24, 691 | 7, 464 | 17, 227 |

[1] Salaries provide for nonnursing faculty and the following nursing department personnel: 1 dean, 27 faculty members, 1 secretary, and 9 clerk-typists.

# GRADUATE NURSING PROGRAMS

Graduate study in nursing is aimed at the preparation of teachers, clinical specialists, administrators, consultants, and researchers in nursing education and nursing service.

## Program Characteristics

A graduate nursing program is organized similar to other graduate programs within the university. With only few exceptions, these are offered in conjunction with a baccalaureate nursing program.

The graduate program is designed to prepare nurses for leadership positions in teaching and administration in all types of educational programs. Such a program also provides an opportunity to study for supervisory and administrative positions in nursing service. Consultants, clinical specialists, and research workers also require graduate study.

### CURRICULUM

The curriculum for each school will be determined by the area or areas of specialization included in the master's degree program. The content for a particular area of specialization will include courses from related sciences, nursing, and an introduction to research methods. Programs which include specialization in an area of nursing practice, such as medicine and/or surgery, maternal and child health, or public health, will require access to patient care areas for student experience and research.

### FACULTY

The faculty for graduate programs requires preparation which will qualify for teaching at the graduate level, for independent research, and for instruction in research. Some faculty members may have combined teaching and research responsibilities. Others may have full-time research positions and may supervise graduate students as assistants.

## Needs and Goals

In 1962, enrollments in 48 master's programs in nursing (both full-time and part-time students) totaled 2,472, while graduations from these programs totaled 1,098 for the academic year, 1961–62.[9]

As shown in figure 10, except for the academic years of 1959–60 and 1960–61, in the last 10 years total enrollment and the percentage of students enrolled full time have increased.

The dearth of candidates qualified for college teaching is reflected in statistics reported in January 1962. Only 4 percent of the nurse faculty members teaching in baccalaureate and higher degree programs held doctoral degrees, while 76 percent had master's degrees. These same programs reported 202 budgeted faculty vacancies.[10]

In addition to the 192 baccalaureate and higher degree programs that were seeking to employ graduates of master's programs in 1962, there were 886 diploma, 53 associate degree, and 693 practical nursing programs that were also bidding for these potential candidates. In the same year, the budgeted faculty vacancies in these other 3 types of programs totaled 1,202.

Leadership personnel prepared at the graduate level are also needed for hospital and public health nursing services. In 1962, only 31.6 percent of administrative and supervisory personnel in public health agencies held graduate degrees.[11]

## Programing and Space Requirements

Nursing programs that admit candidates for the master's and doctorate degrees will require space for teaching, research, faculty, administration, and supporting services.

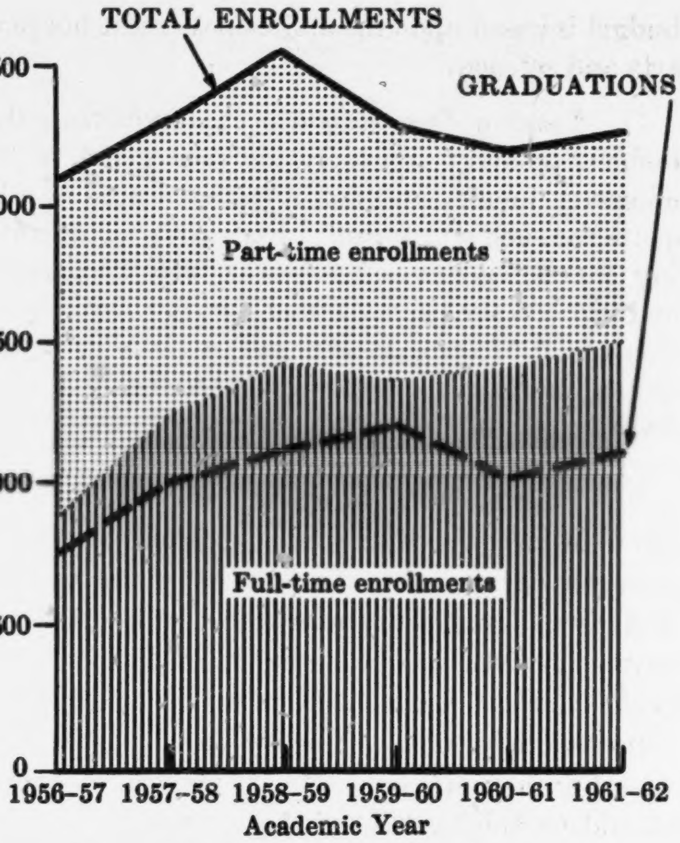


***Figure 10. Enrollments and graduations from master's program in nursing, 1956–62.***

TEACHING SPACE

*Lecture and Classrooms.*—The teaching methods used in graduate education require limited access to large lecture rooms, since there is a high concentration of teaching in small groups. Nevertheless, both lecture and classrooms are needed. In addition, seminar rooms for not more than 20 students should be provided. To determine the number of classrooms and seminar rooms, the same type of projection of schedules used for undergraduate programs should be made.

*Library.*—Research programs oriented toward the behavioral sciences require a university library adequate for graduate work in sociology and psychology or the equivalent. Programs oriented toward research in the biological sciences will require a university or medical center library adequate for graduate work in the basic medical sciences or its equivalent. Periodicals in the field of nursing and research tools in nursing must be available.

Study space will require individual carrels or their equivalent in the library.

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[9] *Some Statistics on Nursing Education—1962*, p. 2. (Unpublished.) See footnote 4.

[10] From statistics collected by the NLN Research and Studies Service based on questionnaire responses from 180 of 192 (94 percent) baccalaureate and higher degree programs.

[11] U.S. Department of Health, Education, and Welfare, Public Health Service. *Nurses for Leadership*. (Item 11, Selected Bibliography, p. 48.)

## RESEARCH SPACE

Nurse faculty and graduate students may be engaged in research in curriculum, in clinical nursing, and in the behavioral, biological, or natural sciences. Research institutes and foundations are increasing their contributions for nursing projects. Some of these grants are under the direction of faculty who also have teaching responsibilities. Others are for personnel with full-time research responsibility who may have graduate students as assistants.

To fulfill the research requirement for a graduate degree and to allow the faculty to pursue independent research, adequate space must be made available. The space may be in the school of nursing or in a basic science building accommodating research personnel employed by schools of nursing, medicine, and others. Nursing research requires an environment with appropriate facilities, personnel, and ongoing research studies in the basic sciences which may be oriented toward the behavioral sciences and/or toward the physical and biological sciences.

Research in curricula, clinical nursing, and nursing service administration may use the multipurpose demonstration rooms for projects relating to methods of providing nursing care, for practice teaching, and for study of nurse-patient relationships. Clinical nursing studies may require access to the patient care areas of hospitals and health agencies.

Behavioral science laboratories are used to observe human and/or animal subjects individually or in groups. The laboratory should provide a section for the experimenter(s) and sufficient space to accommodate a human subject in bed. It should also provide space for electronic physiological monitoring and other bulky equipment. The room for the subject should have controls for humidity, temperature, and a dimmer switch to control illumination. The room should be soundproof and should allow for television monitoring and for a microphone and speaker system between the subject area and the observation room.

The human subject portion of the laboratory is separated from the observation room by a one-way viewing glass. The observation room provides space for equipment to record from the monitoring systems. Space for additional observers may be desirable. The two areas of the laboratory should not have connecting doors. The entrance door from the corridor to the subject portion of the laboratory should be sufficiently wide to permit moving a hospital bed in and out of the room.

Study of the human subject, either individually or in groups, will require the same type of observation room. Rooms used for studying groups should accommodate 25 people seated around a table. Such research (on human subjects) requires space for a patient waiting room. If children are used as subjects, a playroom or nursery is necessary. Sound-resistant interviewing rooms, some with one-way viewing screens, tape recorders, and television projection or monitoring facilities, will be needed.

Behavioral science research requires space for concealed tape-recording apparatus, a kitchenette, bathroom facilities, and a data analysis room.

Although it is assumed that the university has a central computer service, ongoing research requires space for preliminary data analysis and storage of records, IBM cards, and tapes.

Biological science research and some behavioral research may require animals. Laboratories should be of the multidiscipline type to allow for either high or low laboratory workbench space and storage cabinets around the sides and end of rooms. A center island should provide for a laboratory sink, hot and cold water, and electric and gas outlets. Ventilated hoods and a refrigerator are necessary. The laboratory should provide individual desks and laboratory work areas for research assistants. Each area requires storage space, gas, and electrical outlets. The laboratory should be adjacent to the research director's office.

Additional areas will provide space for drying ovens for glassware, storage, and the installation of specialized equipment required for particular projects.

## FACULTY SPACE

Office space provided for the faculty in graduate programs should be similar or identical to that described for baccalaureate faculty. In addition, space will be needed for graduate assistants either in research or teaching. Graduate assistants usually share office space.

## ADMINISTRATIVE SPACE

Programs which enroll a large number of students in a variety of major areas of study may require the establishment of a department for graduate study administered by an administrative assistant. The size of the student enrollment and of the faculty will determine whether secretarial and other administrative personnel will be shared with other programs or assigned to the graduate program. For faculty engaged in research, a ratio of 1 secretary to 3 faculty members is necessary.

# PROFILE OF A GRADUATE PROGRAM

THE REMAINDER of this section presents a profile of a typical graduate program in nursing in a university based on a composite picture of such facilities. The profile, offered as a guide, should be adapted in accordance with the needs of the individual school.

*Description and Size of the Program.*—The program offers only one major in a clinical nursing specialty with no more than one functional orientation; i.e., teaching, supervision, or administration. A research thesis is required. There are 15 faculty members: a ratio of 1 faculty member to each 4 students. The faculty members are qualified to teach and direct a graduate program and are engaged in independent research. Thirty students are admitted each year. The program requires 2 academic years for completion. The total enrollment is 60.

## Space Requirements

### TEACHING SPACE

It is assumed that a few courses will be taught to the whole group, but the majority of teaching will be in groups of eight.

*Lecture Room.*—The total group will have a limited number of lectures each week. This would require a room to accommodate 80 people (60 students and 20 observers). The use would be limited; therefore this room could be shared, or other space in the educational unit may be available.

*Classrooms.*—Assuming there are two 3-hour courses each semester, there will be 12 hours of course work per week for 2 groups of 30 students. Classrooms in the undergraduate program may be available for scheduling.

*Conference Rooms.*—Nine hours of seminar per week for 10 groups of 6 students would require 90 class hours per week for conference rooms. This schedule would require three or four conference rooms.

*Reference-Reading Room.*—A reference-reading room for current periodicals and study space should be provided in the graduate program area.

### RESEARCH SPACE

The number and type of research laboratories to be provided will be determined by the research effort carried out by the graduate and research faculty of the school. A higher degree program probably requires a multipurpose laboratory for curriculum research, a human subject experimental laboratory, and a biochemistry laboratory.

### FACULTY SPACE

Private offices are provided for each faculty member. In addition, it is assumed that eight graduate students will have appointments as graduate assistants. One room with desks for eight persons is provided.

### ADMINISTRATIVE SPACE

It is assumed that a graduate program with only one clinical major and one functional orientation will be in conjunction with and administered by the dean who also administers the undergraduate program. The graduate program will share administrative services. However, adequate space should be provided for secretarial staff. A ratio of 1 secretary to 3 faculty members will be required.

As shown in table 12, the total net usable space for this program is assumed to be:

| *Space* | *Square feet* |
|---|---|
| Teaching | 1, 280 |
| Research | 7, 735 |
| Faculty | 2, 726 |
| Total | 11, 741 |

## Operating Costs

A study of the costs of graduate nursing programs was made in 1959. The method used does not permit the projection of an annual operating budget. The report states that "$2,500 is a reasonable estimate of the average cost in the United States per full-time master's degree student of nursing in 1957–58."[11] It is further estimated that "tuition meets well under half and little more than a third of the costs to the institution of graduate education for nursing."

***Table 12.*** ***Space requirements for a 2-year graduate nursing program in conjunction with basic baccalaureate program with a total entering class of 30 and a total enrollment of 60***

| Spaces | Nursing education area | | | Remarks |
|---|---|---|---|---|
| | Number of rooms | Group size, each room | Total net area (sq. ft.) | |
| Teaching | – | – | 1, 280 | |
| Lecture-demonstration room | – | 80 | – | Shared with undergraduate program. |
| Classrooms | – | 40 | – | Shared with undergraduate program. |
| Seminar rooms | 4 | 12 | 880 | |
| Reference-reading room | 1 | 16 | 400 | |
| Library | – | – | – | Shared with college. |
| Research laboratories | – | – | 7, 735 | |
| Behavioral science | – | – | – | |
| Waiting area | – | – | – | |
| Nursery | – | – | – | |
| Observation rooms | – | – | – | |
| Interview rooms | – | – | – | |
| Conference room | – | – | – | |
| Data analysis room | – | – | – | |
| Multipurpose projects room | – | – | – | |
| Faculty | – | – | 2, 726 | |
| Offices | 15 | 1 | 1, 500 | |
| Research space added | – | – | – | Depending on program. |
| Graduate assistant's office | 1 | 8 | 576 | |
| Secretaries' office | 1 | 5 | 400 | |
| Toilets: | | | | |
| Men | 1 | – | 100 | 1 water closet, 1 urinal, 1 lavatory. |
| Women | 1 | – | 150 | 3 waterclosets, 3 lavatories. |
| Supporting | – | – | – | Shared with undergraduate program. |
| | | | 11, 741 | Total net area. |
| | | | 7, 827 | For walls, partitions, corridors, stairs, and mechanical space. |
| | | | 19, 568 | Total gross area. |
| | | | 326. 1 | Area per enrolled student. |

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[11] See item 4, Selected Bibliography, p. 48.

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# *Chapter V*

# Practical Nursing Programs

SEVENTY-FIVE percent of the State-approved nursing programs leading to a practical nurse certificate are controlled by educational institutions or agencies. The majority are under State and local boards of education. The remainder are mostly under the control of hospitals, with the exception of about six which are under other community agencies.

## Program Characteristics

The practical nursing program which leads to a certificate or diploma is usually 1 year in length, self-contained, complete, and satisfactory for its own purpose, providing preparation exclusively for practical nursing. (California and Texas call these programs "Vocational Nurse Programs" and license the graduates as Licensed Vocational Nurses.) This program's objective is to prepare a needed worker in nursing service who will share in giving direct care to patients. Graduates of practical nursing programs perform two major functions:

1. Under the direction of a registered nurse or physician, they administer nursing care in situations relatively free of scientific complexity.

2. In a close working relationship, they assist registered nurses in providing nursing care in more complex situations.[1]

***Table 13. Number of approved programs, and the admissions and graduations in schools of practical nursing, 1955–56 through 1961–62***

| Academic year | Approved programs | Admissions | Graduations |
|---|---|---|---|
| 1961–62 | 739 | 26,660 | 18,106 |
| 1960–61 | 692 | 24,955 | 16,635 |
| 1959–60 | 661 | 23,060 | 16,491 |
| 1958–59 | 607 | 23,116 | 14,573 |
| 1957–58 | 520 | 20,531 | 12,407 |
| 1956–57 | 439 | 16,843 | 10,666 |
| 1955–56 | 396 | 15,526 | 10,641 |

Source: National League for Nursing, 1963.

### APPROVAL

The appropriate State licensing authority must approve practical nursing programs. This approval admits graduates to examination for licensure as a practical nurse.

### NUMBER OF PROGRAMS AND STUDENTS

Table 13 shows the extent to which admissions to and graduations from practical nursing programs are increasing. Three-fourths of all students admitted complete the course. The majority of programs admit two classes annually.

### CURRICULUM

The practical nursing curriculum includes instruction in classrooms, in laboratories, in the patient care areas of hospitals, and in other community agencies. Included are related courses which provide a foundation for the nursing portion of the curriculum and nursing courses which prepare the student for nursing practice.

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[1] National League for Nursing. *Nursing Education Programs Today.* p. 9. (Item 2, Selected Bibliography, p. 57.)

The related courses cover the physical, biological, behavioral, and social sciences. The principles of science which apply to practical nursing are correlated and integrated into the nursing curriculum.

The nursing courses are planned so that students will receive instruction and experience in the nursing care of medical, surgical, pediatric, obstetric, and psychiatric patients. The students are prepared to become proficient in caring for the patient whose needs are relatively free from scientific complexity as well as in assisting the professional nurse in a highly complex nursing situation.

The teaching methods used consist of a minimum of lectures, a high concentration of time in small group conferences, demonstration by the instructor of nursing care to patients, and laboratory practice by the student in administering patient care. In the patient care areas in addition to patient care experience by the student, the instructor will hold prenursing and postnursing care planning conferences with the students. The instructor also demonstrates care to the group and supervises the care given by one or more students. The total class may be divided into groups and rotated within the areas of nursing for instruction and patient care experience.

## RESOURCES FOR PATIENT CARE EXPERIENCE

Supervised experience in administering nursing care to patients is an essential and vital element in nursing education. In addition to inpatient care areas in general hospitals, many programs use other community health facilities such as long-term care units, ambulatory outpatient facilities, and nursery schools.

Practical nursing programs under the control of hospitals have access to inpatient care areas within the hospital in which they are organized. All other programs must establish administrative agreement with hospitals and other health agencies for the nursing experience the students will require. Some hospital-controlled schools, lacking certain facilities, will need to seek patient care facilities in other agencies—usually community related. The types of patients for whom these facilities may be needed are maternity, pediatric, and psychiatric.

Programs organized under vocational education may use four or more agencies to arrange for the patient care experience the student requires. Written administrative agreements between the educational control of the program and the service control of the hospital and health agency define the mutual responsibilities of each. These agreements are developed jointly and are subject to periodic review.

Agreements usually specify that the school will have control of the students' experience, appoint the faculty to teach and supervise the students, and select the patients for the students' experience. The hospital or health agency provides (1) facilities such as conference rooms and space for reference materials, (2) time for the instructors and nursing service personnel to plan for the students' experience, and (3) a quality of nursing and medical care which makes it possible for students to learn good nursing care where it is being practiced.

## FACULTY

The faculty consists of those whose full responsibility is to teach in the practical nursing program. The school may use resource persons from related professional groups including physicians, nutritionists, and social workers.

# Needs and Goals

The Surgeon General's Consultant Group on Nursing[2] estimates that in 1962 licensed practical nurses totaled 225,000 and that by 1970 the need will reach 350,000. To meet this goal, some existing schools will need to expand and, in some instances, new schools will need to be established.

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[2] U.S. Department of Health, Education, and Welfare, Public Health Service. *Toward Quality in Nursing.* (Item 6, Selected Bibliography, ch. II, p. 17.)

# Programing and Space Requirements

Before the architect will be able to develop an adequate building program in keeping with curriculum requirements, he should be provided such information as: (1) the student enrollment; (2) educational program; (3) space requirements for instruction, faculty and administrative offices, and supporting areas. This information should be set forth in a written program developed by a building committee, assisted by the program director and the nursing faculty.

Historical and current trends indicate inevitable expansion of facilities to meet increasing demands for graduates from practical nursing programs. Failure to consider the requirements for long-range as well as immediate needs will result in increased construction costs and poor functional arrangements when expansion occurs.

The decision to expand an existing school or build a new facility should be made only after careful consideration of such factors as the employment demand for practical nurses and the probability of recruiting sufficient qualified applicants to make the establishment of the program worth while. Of equal importance is the need to assure continuing financial support, and the availability of qualified faculty and adequate patient care facilities. State boards for practical nurse education and licensure as well as State and local boards of education should be consulted to assure that curriculum planning will meet legal and regulatory requirements.

The curriculum is the basis for the development of the functional and building program. At least 1 year will be required for this programing.

In practical nursing programs admitting only one class per year, the maximum total enrollment will be the new admissions at the beginning of the academic year. If two or more classes are admitted in 1 year, the increase in enrollments may require additional classroom space.

To provide flexibility for future expansion, it is recommended that (1) lecture rooms be planned to accommodate the maximum enrollment projected, (2) the number of small classrooms be sufficient to permit scheduling additional sections as enrollments and faculty increase, and (3) architectural design and engineering incorporate features which, when necessary, can be modified to accommodate future changes in the program and in teaching methods.

## TEACHING SPACE

Teaching methods commonly used that require architectural planning include lecture, student conferences, demonstration, and films. The use of slides and other audiovisual aids must be considered. The teaching space to be planned will include lecture, class, multipurpose and conference rooms, and libraries.

*Lecture-Demonstration Room.*—A large lecture room to seat the total admissions may be needed for some courses. If space for patient care demonstration is included, this room may be used for nursing courses. Where only lecture and demonstration are to be used as teaching methods, fixed seating for large groups can be accommodated in a single classroom.

*Classrooms.*—Courses requiring student participation should be held in small rooms having movable seats. The school should determine the optimum size of such groups, so that the number of rooms needed can be established.

*Multipurpose Room.*—Students must develop skills in caring for patients and in handling equipment used for patient care. After demonstration by the instructor, students in practical nursing programs have supervised practice in laboratories that simulate the patient care areas of hospitals.

*Conference Rooms.*—Conferences with a small group of students assigned for a specific type of patient care experience are frequently scheduled in the educational unit.

*Science Laboratory.*—While students in the practical nursing curricula have instruction in body structure and functions as well as principles of chemistry and biology, these are not organized as are the science courses in other nursing programs. The required science content is integrated into the nursing courses. Science laboratories are therefore not required for practical nursing programs.

*Nutrition Laboratory.*—The principles of nutrition for patient care are included in the nursing courses. Laboratory practice for food preparation is seldom included. Many schools planning new facilities are omitting nutrition laboratories; other schools are converting nutrition laboratories into classroom or office space.

*Library.*—Practical nursing programs require library resources available to students when they are in the educational unit and within the patient care practice areas. Programs organized in hospitals may include the practical nurse reference material in the hospital library. Programs in vocational schools use the school library for housing practical nurse reference materials.

In addition to the central library, all programs require a limited number of current reference books in the patient care areas. These may be placed at the head nurse's station or in the nursing conference room. Where multiple patient care facilities are used for nursing practice, duplication of this type of reference material will be necessary and methods for its transportation provided.

Storage space for educational aids that are specific to nursing such as anatomical models and charts is needed in the nursing educational area.

## FACULTY SPACE

*Conference Room.*—A room for faculty meetings, conferences, and work groups is needed in the educational unit. The size of the group and the frequency of meetings will determine whether other space may be used or whether a specified room is required.

*Offices.*—Since privacy is a fundamental requirement for faculty offices, each office should be built to accommodate only one faculty member. To determine office requirements as enrollments increase, it is recommended that for teaching in the patient care areas in relation to such clinical nursing courses as medicine, surgery, obstetrics, and pediatrics, a ratio of 1 instructor to 10 students may be used as a planning factor.

This does not mean that 1 instructor will necessarily supervise 10 students in patient care practice. An instructor may demonstrate and supervise patient care for one student with one patient or she may have two groups of four or five students within the patient care area. Factors affecting the number of faculty needed include the teaching methods and the number of agencies and patient care units used for student experience. The annual admissions and the total enrollments will indicate the number of faculty needed.

## ADMINISTRATIVE SPACE

The administrative space includes offices for the program director and her secretary; a lobby reception area for visitors; space for clerk-typists, and areas for storage. Also needed is space for duplicating educational materials, registering and admitting students, providing student health services, and controlling communications.

Practical nursing programs in vocational schools are organized under the control of boards of education; hospital programs are controlled by the hospital. Each program will require the complete range of administrative functions. However, the extent to which any one program provides facilities for the total administrative functions within the educational unit will be determined by the control of the program.

Programs organized in vocational schools will centralize the administrative functions common to all programs in the school. Examples of these functions are student health, registrar activities, public relations, publications, fiscal management, maintenance, and housekeeping. Personnel functions for faculty and supporting personnel are also centralized in educational institutions.

Practical nursing programs organized in a hospital will need to assure that space for all administrative functions is provided.

## SUPPORTING SPACE

Lounges and lockers are necessary in the educational unit if students and faculty must change from street clothes to uniforms. Space is also needed for janitors' closets, toilets for visitors and students, mechanical equipment, corridors, vending machines, and public telephones.

## STUDENT HOUSING

Practical nursing programs under hospital control frequently admit both resident and day students. If a student residence is provided adjacent to the educational unit, the lobby reception area might possibly be shared. Locker space for students in residence may be omitted, but sufficient locker and lounge space to accommodate the day students must be planned.

### PATIENT CARE EXPERIENCE AREAS

*Conference Rooms.*—Students enrolled in clinical nursing courses will be assigned in small groups for patient care experience in medicine, surgery, pediatrics, psychiatry, and other areas. Patient care planning conferences are an integral part of this experience. These conferences are scheduled while the student is assigned to the patient care area. If the nursing educational facility is close to the hospital or health agency, conference rooms in both areas are available for scheduling.

If conference rooms on patient units in hospitals are assigned to nursing service, they may be made available for conferences with nursing students during certain hours of the day. These conference rooms should provide for flexible seating arrangement, reference materials, and the use of audiovisual teaching aids.

*Lockers.*—Students and faculty will require locker space in the hospital. Programs organized under hospital control may omit lockers in the hospital if there is direct access from the residence to the hospital.

*Food Service.*—Students and faculty from vocational school programs will use the food service of the hospital when they are in the hospital for patient care experience. Resident students in programs organized within the hospital obtain their meals in the employee dining room.

## PROFILE OF PRACTICAL NURSING PROGRAMS

THE REMAINDER of this chapter presents a profile of a typical practical nursing program organized either in a vocational school or in a hospital. These profiles, offered as a guide, should be adapted to comply with each school's needs.

*Size of School.*—Each school admits 48 students once a year. A nurse director administers each program which has five full-time nurse faculty members, one secretary, and one clerk-typist. In the hospital program the secretary and clerk-typist also carry out the functions of the admissions' clerk and the registrar. These functions are shared by all programs organized in the vocational school.

### Space Requirements

As shown in table 14, the total net usable space for the program in a *vocational school* is estimated as follows:

| *Space* | *Square feet* |
|---|---|
| Teaching | 5, 368 |
| Faculty | 500 |
| Administrative | 580 |
| Supporting area | 1, 825 |
| Total | 8, 273 |

As shown in table 15, the total usable space for a program organized under the *control of a hospital* is estimated as follows:

| *Space* | *Square feet* |
|---|---|
| Teaching | 5,368 |
| Faculty | 500 |
| Administrative | 780 |
| Supporting area | 1, 265 |
| Total | 7, 913 |

### Operating Budget

Cost data that could be used to project annual operating budgets for practical nursing programs are not available at this time. Although recent studies[3] have reported expenditures by programs under educational or hospital control, many items necessary for an operating budget are not included. For this reason, no attempt was made to project annual operating costs.

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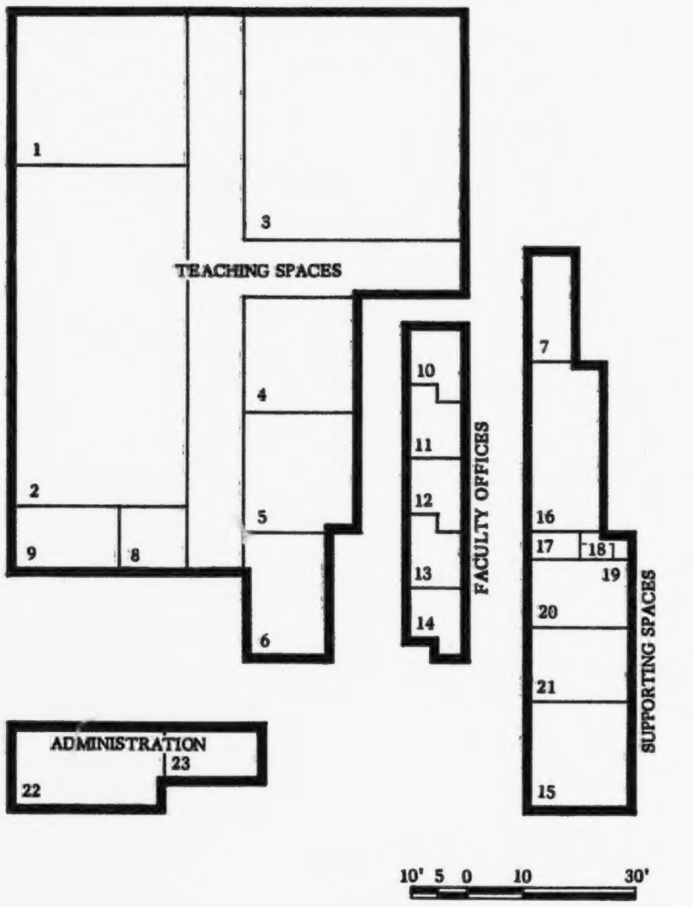
[3] National League for Nursing. *Education for Practical Nursing.* p. 47. (Item I, Selected Bibliography, p. 57.)

***Table 14. Space requirements for a 1-year practical nursing program in a vocational school with an entering class and enrollment of 64***

| Spaces | Nursing education area | | | Remarks |
|---|---|---|---|---|
| | Number of rooms | Group size, each room | Total net area (sq. ft.) | |
| **Teaching** | – | – | 5, 368 | |
| Lecture-demonstration room | 1 | 64 | 1, 600 | |
| Classrooms | 1 | 36 | 648 | |
| Conference rooms | 2 | 16 | 600 | Additional required in hospital. |
| Multipurpose room with storage and utility rooms | 1 | – | 2, 000 | 8 beds. |
| Storage-teaching aids | 1 | – | 120 | |
| Reference-reading room | 1 | 16 | 400 | |
| Library | – | – | – | Shared. |
| **Faculty** | – | – | 500 | |
| Offices | 5 | 1 | 500 | |
| Lounge | – | – | – | School faculty lounge. |
| Toilets and lockers | – | – | – | Shared. |
| **Administration** | – | – | 580 | |
| Reception and general office | 1 | 2 | 160 | |
| Storage area | 1 | – | 80 | |
| Duplicating area | – | – | – | Shared. |
| Director's office | 1 | 1 | 340 | With coat closet and toilet. |
| Registrar's office | – | – | – | Shared. |
| Admissions office | – | – | – | Shared. |
| Student counselor's office | – | – | – | Shared. |
| Students' health service | – | – | – | Shared. |
| Staff lounge | – | – | – | Shared. |
| Washroom, toilets, and lockers | – | – | – | Shared. |
| Visitors toilets: | | | | |
| Men | – | – | – | Shared. |
| Women | – | – | – | Shared. |
| **Supporting** | – | – | 1, 825 | |
| Students' toilets: | | | | |
| Men | 1 | – | 180 | 2 waterclosets, 2 urinals, 2 lavatories. |
| Women | 1 | – | 180 | 4 waterclosets, 4 lavatories. |
| Students' lounge | 1 | – | 400 | |
| Lockers | – | – | 400 | 1 full-size locker for each new student and each staff member. |
| Janitors' closets | 1 | – | 40 | Or as required. |
| Coat alcoves | – | – | 25 | Or as required. |
| Vending machines | – | – | – | As required. |
| Telephone booths | – | – | – | As required. |
| Drinking fountains | – | – | – | Minimum of 2 recessed or as required. |
| General storage | 1 | – | 600 | |
| | | | 8, 273 | Total net area. |
| | | | 5, 515 | For walls, partitions, corridors, stairs, and mechanical space. |
| | | | 13, 788 | Total gross area. |
| | | | 215. 4 | Area per enrolled student. |

**Table 15. *Space requirements for a 1-year practical nursing program in a hospital with an entering class and total enrollment of 64***

| Spaces | Nursing education area | | | Remarks |
|---|---|---|---|---|
| | Number of rooms | Group size, each room | Total net area (sq. ft.) | |
| Teaching | – | – | 5, 368 | |
| Lecture-demonstration room | 1 | 64 | 1, 600 | |
| Classrooms | 1 | 36 | 648 | |
| Conference rooms | 2 | 16 | 600 | Additional required in hospital. |
| Multipurpose room with storage and utility rooms | 1 | – | 2, 000 | 8 beds. |
| Storage-teaching aids | 1 | – | 120 | |
| Reference-reading room | 1 | 16 | 400 | |
| Library | – | – | – | Shared with a hospital. |
| Faculty | – | – | 500 | |
| Offices | – | – | 500 | |
| Administration | – | – | 780 | |
| Lobby-reception area | 1 | 2 | 160 | |
| Storage area | 1 | – | 80 | |
| Duplicating area | – | – | – | Shared with hospital. |
| Director's office | 1 | 1 | 340 | With coat closet and toilet. |
| Staff lounge and washroom | 1 | – | 200 | |
| Toilets and lockers | – | – | – | |
| Supporting | – | – | 1, 265 | |
| Students' toilets: | | | | |
| Men | 1 | – | 180 | 2 waterclosets, 2 urinals, 2 lavatories. |
| Women | 1 | – | 180 | 4 waterclosets, 4 lavatories. |
| Students' lounge | 1 | – | 140 | |
| Lockers | – | – | 100 | |
| Janitors' closets | 1 | – | 40 | Or as required. |
| Coat alcoves | – | – | 25 | Or as required. |
| Vending machines | – | – | – | As required. |
| Telephone booths | – | – | – | As required. |
| Drinking fountains | – | – | – | Minimum of 2 recessed or as required. |
| General storage | 1 | – | 600 | |
| | | | 7, 913 | Total net area. |
| | | | 5, 275 | For walls, corridors, partitions, stairs, and mechanical space. |
| | | | 13, 188 | Total gross area. |
| | | | 206. 06 | Area per enrolled student. |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**TEACHING SPACES**

1. CLASSROOM
2. MULTIPURPOSE ROOM
3. LECTURE DEMONSTRATION ROOM
4-5. STUDENTS' CONFERENCE ROOM
6. REFERENCE READING ROOM
7. STORE ROOM - TEACHING AIDS
8. UTILITY ROOM
9. STORE ROOM

**FACULTY SPACES**

10-14. FACULTY OFFICES

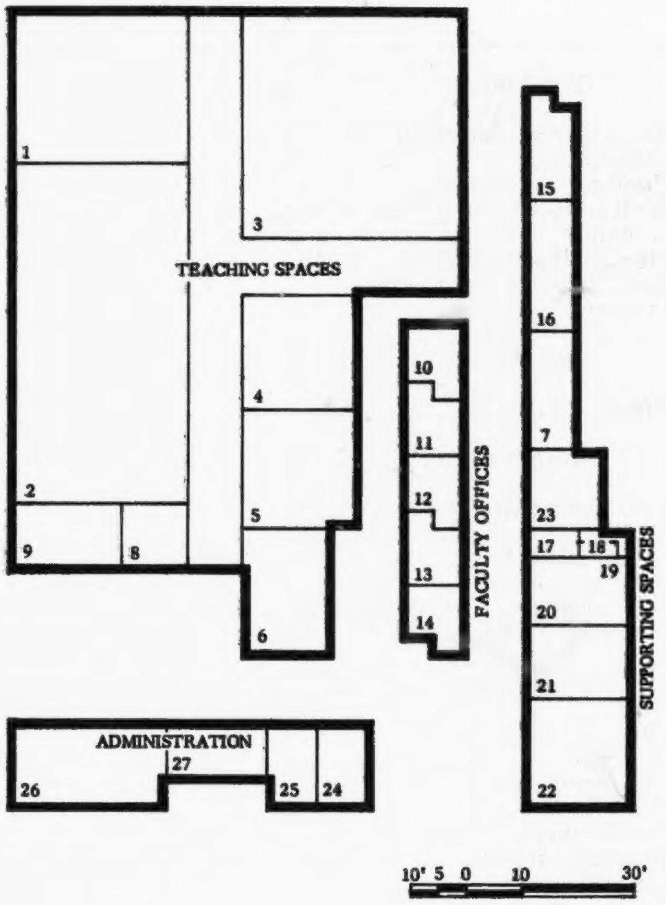
**SUPPORTING SPACES**

15. STUDENTS' LOCKER ROOM
16. STUDENTS' LOUNGE
17. JANITOR'S CLOSET
18. VENDING MACHINES
19. TELEPHONE BOOTHS
20. M. TOILETS & WASHROOM
21. W. TOILETS & WASHROOM

**ADMINISTRATION SPACES**

22. DIRECTOR'S OFFICE
23. LOBBY-RECEPTION AREA

***Figure 11. Space relationships of a practical nursing program in a vocational school.***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24
10' 5 0 10 30'

**TEACHING SPACES**

1. CLASSROOM
2. MULTIPURPOSE ROOM
3. LECTURE DEMONSTRATION ROOM
4-5. STUDENTS' CONFERENCE ROOM
6. REFERENCE READING ROOM
7. STORE ROOM - TEACHING AIDS
8. UTILITY ROOM
9. STORE ROOM

**FACULTY SPACES**

10-14. FACULTY OFFICES

**SUPPORTING SPACES**

15. STUDENTS' LOCKER ROOM
16. STUDENTS' LOUNGE
17. JANITOR'S CLOSET
18. VENDING MACHINES
19. TELEPHONE BOOTH
20. M. TOILETS & WASHROOM
21. W. TOILETS & WASHROOM
22. MECHANICAL EQUIPMENT ROOM

**ADMINISTRATION SPACES**

23. STAFF LOUNGE
24. ADMISSION & REGISTRAR'S OFF.
25. FILES & STATIONERY STORE ROOM
26. DIRECTOR'S OFFICE
27. LOBBY-RECEPTION AREA

***Figure 12. Space relationships of a practical nursing program in a hospital.***

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4. Orem, Dorothea. *Guides for Developing Curricula for Education of Practical Nurses.* Washington, D.C. U.S. Government Printing Office. 1959. 165 pp.

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## *Chapter VI*

# Architectural Considerations

A CAREFUL analysis of the needs and objectives of the proposed facility for nursing education is an essential prerequisite to the development of an adequate architectural design. This analysis should be expressed in a functional program and should contain such information as the relationship of the proposed facility to other similar and related facilities in the area, special characteristics of the curriculum, a listing of the specific subjects to be taught and some of the special requirements necessary to teach them, schedule of classes, and information about the staff and the proposed student body. This usually is the responsibility of the sponsors, consultants, and the staff.

After the functional program has been determined, a building program should be developed. The building program will contain more specific information regarding the kinds and number of classrooms; student enrollment by classes; the number of offices, locker spaces, and service areas; the kinds of equipment; and other relevant information covering such considerations as lighting requirements, sound control, and audiovisual aids.

If the architect is engaged from the outset of planning, he will be able to contribute greatly to the program's development. He can suggest many aspects to be considered by the sponsors so that adequate provisions may be made in planning. He can also advise in regard to site problems which may occur.

An important planning consideration is that the facility express its own identity as a cohesive unit, whether as a separate building, a wing of a building, or a floor in a large building.

The physical essentials of the various spaces required for any type of program of nursing education are briefly described in this chapter. All the spaces noted, however, are not necessarily required for all programs. Moreover, many of the spaces may be used in conjunction with other departments of a community college, a university, or institution to which the nursing education program is related. Where possible, variations are noted.

The diagrams of teaching spaces are only suggestive of one method of arranging these spaces. The final scheme used by a nursing education program will depend on its particular needs expressed in the written program. The degree to which the architect can effectively design a facility depends largely on how thoroughly the functional program of the proposed facility was prepared.

## SPACE REQUIREMENTS

ALTHOUGH EACH nursing education facility will find it necessary to determine its own space requirements in light of its own needs, the spaces required by most schools might be grouped under seven categories. These categories include: teaching spaces, research facilities, faculty offices, administrative unit, students' facilities, supporting areas, and continuing education.

## Teaching Spaces

### LECTURE-DEMONSTRATION ROOMS

The lecture-demonstration room (figs. 13, 14, and 15) is used for the purpose implied in its name. Factors to be considered in determining physical dimensions are requirements for the following: (1) teaching station, (2) demonstration area, (3) seating area, (4) projection space or room, and (5) storage closets. A brief description of each follows:

*Teaching Station.*—The teaching station should be equipped with chalkboards, tackboards, projection screens, and map rails above to support diagrams and charts. Recent technological developments in coated plastic-adhesive-back materials for chalkboards should be investigated since their use may reduce costs.

*Demonstration Area.*—The demonstration area in front of the teaching station should be large enough to permit the use of equipment such as an adult-size bed or movable sectional counter units which have locking wheels. These units, which have storage space underneath, provide greater flexibility than fixed counters, since they can be assembled into any arrangement or length and can be stored elsewhere when not in use.

A lavatory will be needed in the lecture-demonstration area for use whenever a patient care demonstration is presented. The doors into this room should be a minimum of 3 feet 8 inches wide to provide an adequate passageway for a bed and other equipment used during a demonstration.

*Seating Area.*—Since good visibility of the instruction and demonstration area should be assured from all seats, a stepped floor should be considered. Steps should be so designed that each sight line misses the row ahead by 4 inches. Fixed seats equipped with hinged or removable tablet support for writing are recommended. Ten percent of the seats should be for left-handed students.

*Projection Room.*—A projection room separated from the classroom is desirable because it eliminates such disturbing factors as noise and light. However, certain disadvantages of a separate projection room such as the need for an operator and for communication facilities between the operator and the instructor should be considered.

In lieu of a projection room, a console for projection equipment is a good compromise. This console will contain all lighting and projection controls and will have locked storage space for equipment when not in use.

If such a room is provided, it may also be used for editing and storing material to be projected. Provision, therefore, should be made for counters with storage space underneath. One of the counters should have a sink. Open shelves or wall cabinets with glazed doors may be provided above the counters.

The projection wall should have two small windows so that two projectors can show two images on the screens simultaneously. The width of the screen should be approximately equal to one-sixth of the distance to the last row of seats. Projection screens can be the rollup type, either manually or mechanically operated, or the fixed type. Mechanical operation, although noisy, prevents accidental damage to the screen.

*Storage Closets.*—Storage closets with standard height doors may be provided. Among other things, skeletons and full-scale models of the human body may be stored here if there is no centralized storage.

### CLASSROOMS

The classroom (see fig. 16) should provide an optimum setting for communication between the instructor and the students.

The room's shape and size should permit easy visibility of written material on the chalkboard as well as the projected image on the screen. The need to maintain as close a verbal distance as possible between students and the instructor should also be considered.

Acoustical treatment to support verbal communication and sound insulation to prevent the penetration of outside noises must be considered in selecting structural and finish materials.

In addition to the floor area required for seating, space should be allocated for teaching and demonstration and for mounting a projector. (Advantages and disadvantages of a separate projection room were noted in the section entitled "Projection Room.")

If central storage of such teaching aids as skeletons and full-scale models of the human body is not provided, storage closets will be required in classrooms.

A lavatory should be provided in the room near the teaching station so that it will be easily

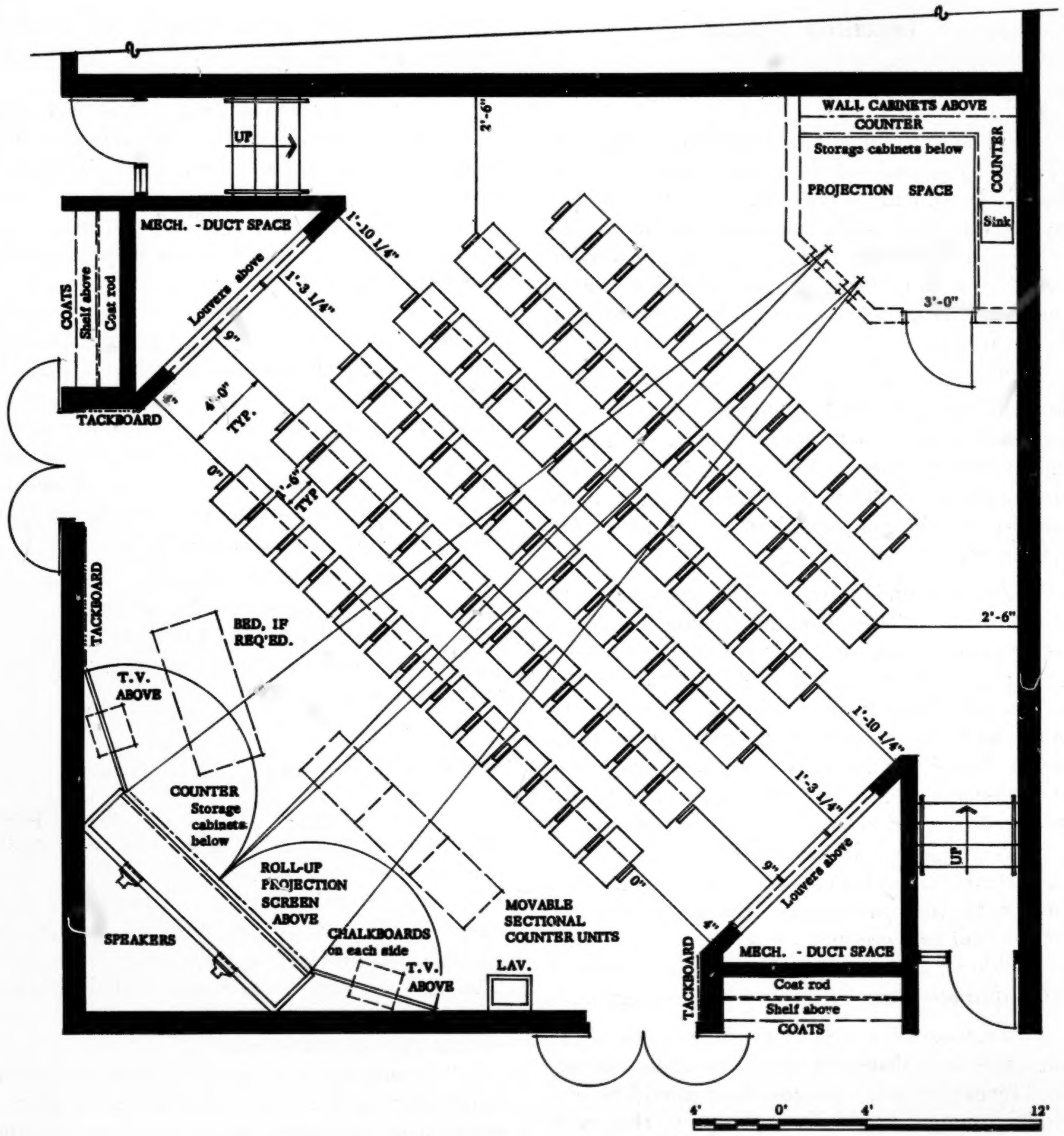

UP
2'-6"
WALL CABINETS ABOVE
COUNTER
Storage cabinets below
PROJECTION SPACE
COUNTER
Sink
3'-0"
MECH. - DUCT SPACE
1'-10 1/4"
1'-3 1/4"
Louvers above
9"
COATS
Shelf above
Coat rod
4'-0"
TYP.
TACKBOARD
0"
1'-6"
TYP
TACKBOARD
BED, IF REQ'ED.
T.V. ABOVE
2'-6"
COUNTER
Storage cabinets below
ROLL-UP PROJECTION SCREEN ABOVE
SPEAKERS
CHALKBOARDS on each side
T.V. ABOVE
LAV.
MOVABLE SECTIONAL COUNTER UNITS
1'-10 1/4"
1'-3 1/4"
9"
Louvers above
0"
4"
UP
MECH. - DUCT SPACE
TACKBOARD
Coat rod
Shelf above
COATS
4'
0'
4'
12'

***Figure 13. Lecture-demonstration room (example a).***

**accessible for use whenever patient care is being demonstrated.**

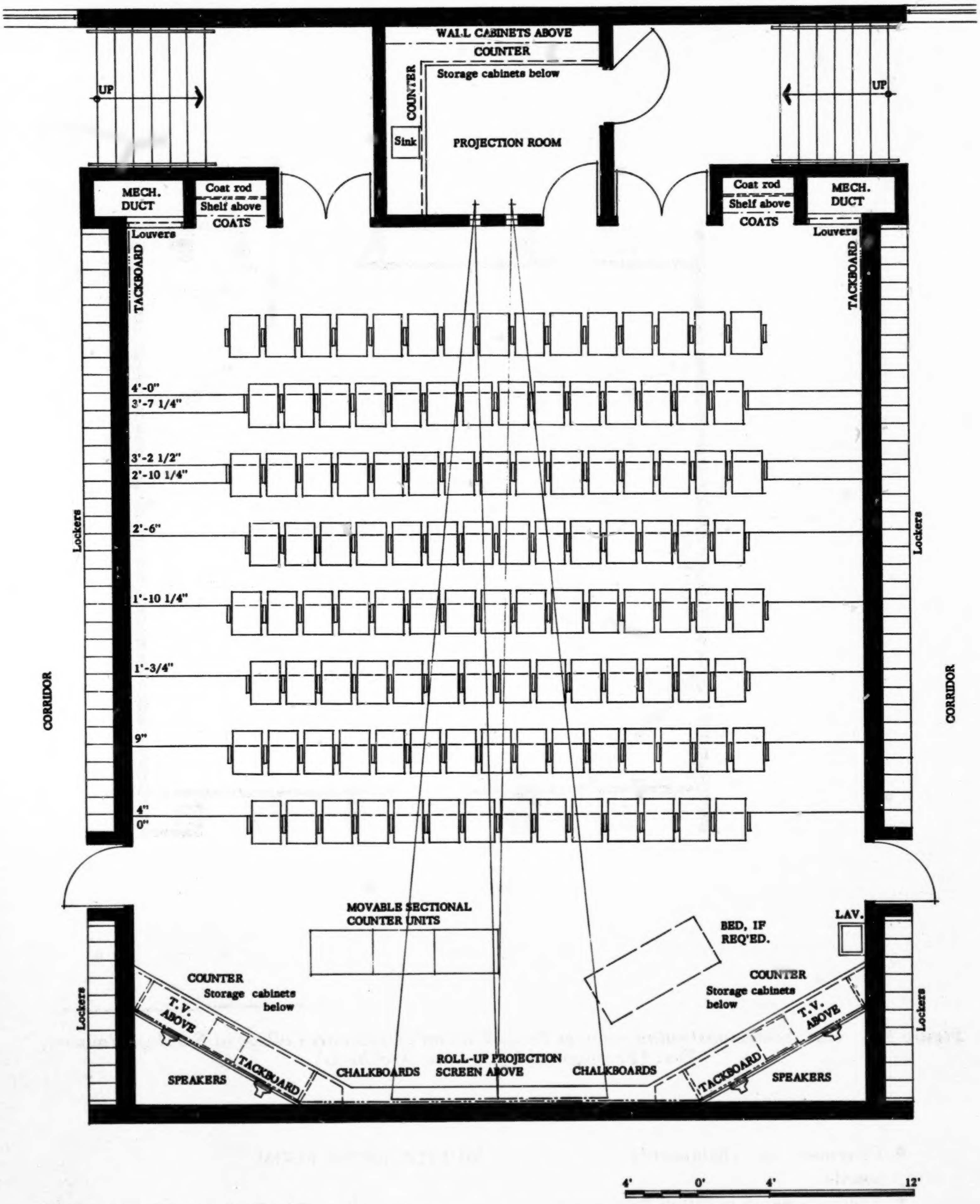
**The classroom door should be a minimum of 3 feet 8 inches wide to permit easy transportation of an adult-size bed which may be required for demonstration.**

**Equipment which will be needed for classrooms includes chalkboards, tackboards, and projection screens. X-ray film illuminators, either portable or wall mounted, may also be used.**

## STUDENTS' CONFERENCE ROOMS (TEACHING)

**Student conference rooms will be required in all programs. (See fig. 16.) The number of such rooms will depend on the anticipated enrollment. Major planning considerations include:**

- **Seating arrangement at tables for group discussions or lectures.**



WALL CABINETS ABOVE
COUNTER
COUNTER
Storage cabinets below
Sink
PROJECTION ROOM
UP
UP
MECH. DUCT
Coat rod
Shelf above
COATS
Coat rod
Shelf above
COATS
MECH. DUCT
Louvers
Louvers
TACKBOARD
TACKBOARD
4'-0"
3'-7 1/4"
3'-2 1/2"
2'-10 1/4"
2'-6"
1'-10 1/4"
1'-3/4"
9"
4"
0"
Lockers
Lockers
CORRIDOR
CORRIDOR
MOVABLE SECTIONAL COUNTER UNITS
BED, IF REQ'ED.
LAV.
COUNTER
Storage cabinets below
COUNTER
Storage cabinets below
T.V. ABOVE
T.V. ABOVE
TACKBOARD
TACKBOARD
SPEAKERS
SPEAKERS
CHALKBOARDS
ROLL-UP PROJECTION SCREEN ABOVE
CHALKBOARDS
Lockers
Lockers
4'
0'
4'
12'

*Figure 14. Lecture-demonstration room (example b).*

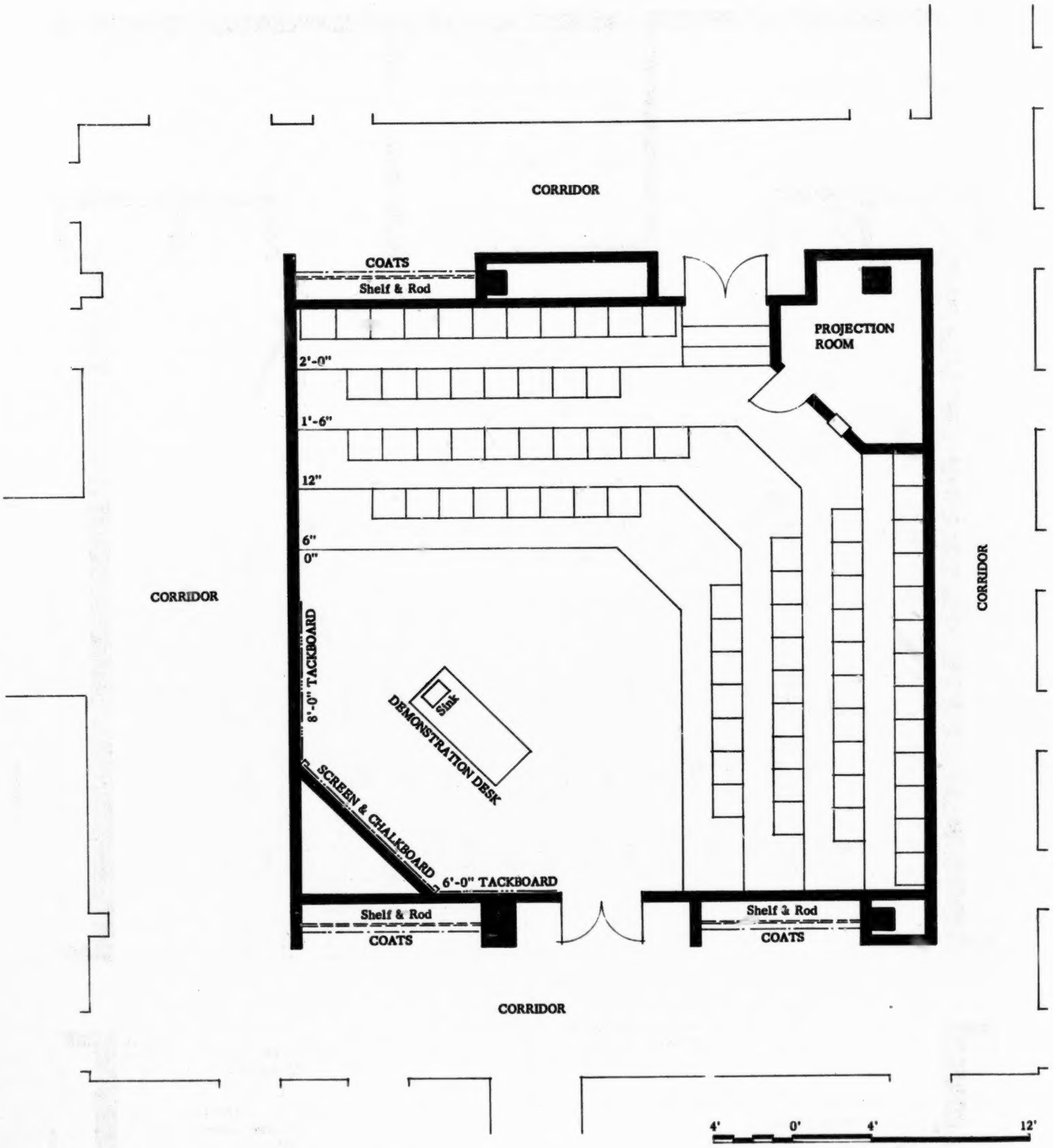

CORRIDOR
COATS
Shelf & Rod
PROJECTION ROOM
2'-0"
1'-6"
12"
6"
0"
CORRIDOR
CORRIDOR
8'-0" TACKBOARD
Sink
DEMONSTRATION DESK
SCREEN & CHALKBOARD
6'-0" TACKBOARD
Shelf & Rod
COATS
Shelf & Rod
COATS
CORRIDOR
4'
0'
4'
12'

***Figure 15. Lecture-demonstration room at Texas Woman's University College of Nursing, Houston, Tex. (Freeman and Van Ness, Architects).***

- Placement of chalkboards and tackboards.
- Adequate sound isolation from one room space to another.

### MULTIPURPOSE ROOM

The multipurpose room (see fig. 17) may be used for student practice of patient care as well

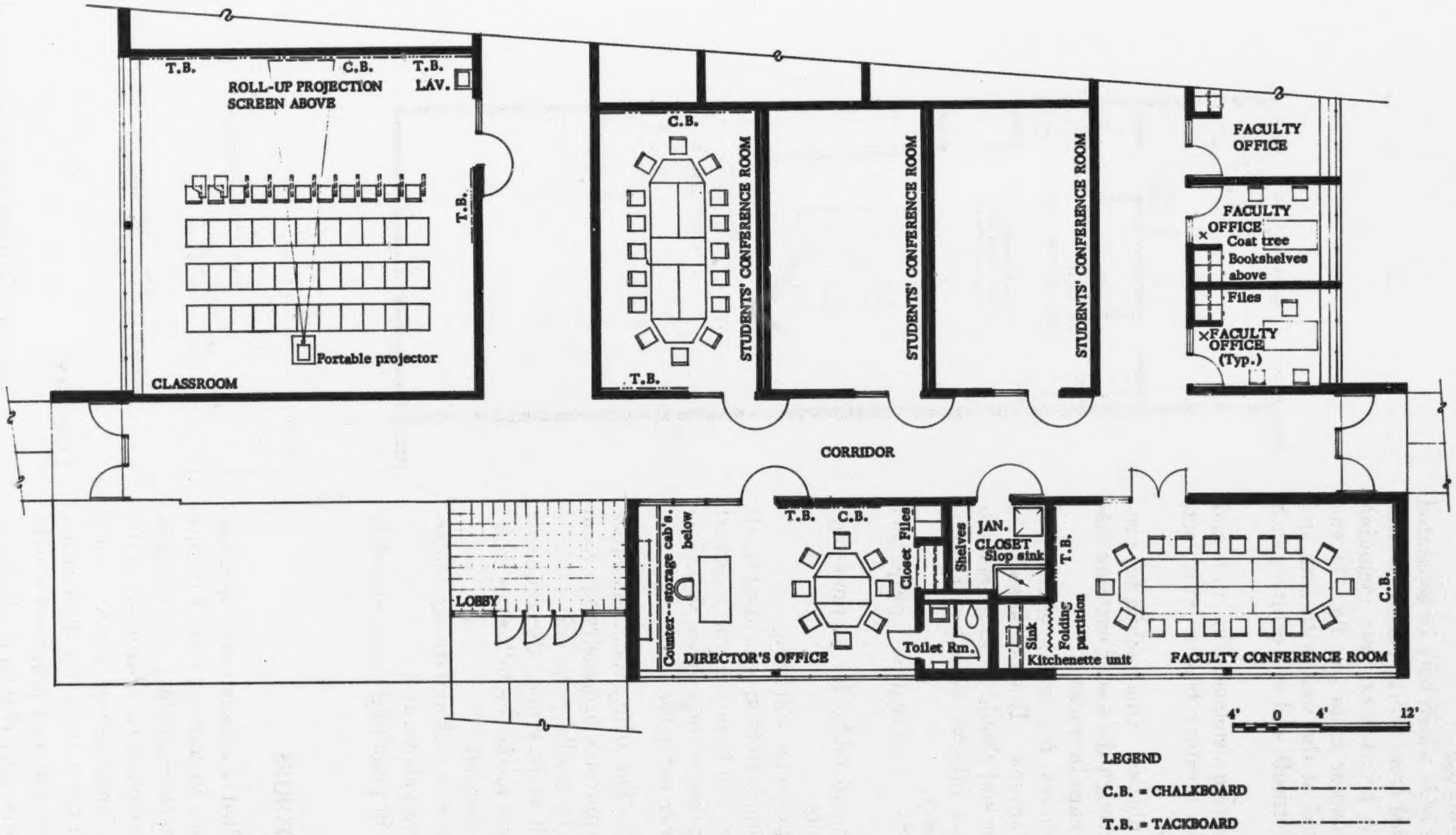

T.B.
C.B.
T.B.
LAV.
ROLL-UP PROJECTION SCREEN ABOVE
T.B.
Portable projector
CLASSROOM
C.B.
T.B.
STUDENTS' CONFERENCE ROOM
STUDENTS' CONFERENCE ROOM
STUDENTS' CONFERENCE ROOM
FACULTY OFFICE
FACULTY OFFICE
Coat tree
Bookshelves above
Files
FACULTY OFFICE (Typ.)
CORRIDOR
LOBBY
Counter--storage cab's. below
T.B.
C.B.
DIRECTOR'S OFFICE
Closet
Files
Shelves
JAN. CLOSET
Slop sink
Toilet Rm.
T.B.
Sink
Folding partition
Kitchenette unit
C.B.
FACULTY CONFERENCE ROOM
4'
0
4'
12'
LEGEND
C.B. = CHALKBOARD
T.B. = TACKBOARD

**Figure 16. Student-faculty areas.**

as for classroom functions. Thus, the room should accommodate the following:

1. Adult-size beds which may be separated by curtains suspended from ceiling curtain tracks.

2. A medicine preparation area including movable sectional counter units (see fig. 17) and fixed counters located at the wall with sink and storage cabinets underneath and wall cabinets with glazed doors above.

3. A handwashing demonstration unit and a minimum of three lavatory basins with foot, wrist, or knee control.

4. Dressing cubicles. One method for providing privacy is through the use of curtains suspended from ceiling curtain tracks.

5. Storage closets for small equipment, linen, charts, and diagrams. These closets should have a full-size door and should be large enough to store skeletons and full-size models of the human body, if necessary.

6. Chalkboards, tackboards, projection screens.

7. Seating around tables for seminar-type lectures for 16 students.

8. Space for projector mounting.

X-ray film illuminators may be used in all teaching areas. They can be either wall mounted or portable. If portable, storage space should be allocated for them when not in use.

*Utility Room.*—The utility room can either be a part of the multipurpose demonstration room or may be separated by a solid partition.

Although each facility must determine its own specific equipment needs, the following built-in features are recommended:

(1) A counter with sink and storage underneath with wall cabinets above, and

(2) Roughed-in plumbing to accommodate future fixtures.

## SCIENCE LABORATORIES

Students enrolled in associate and baccalaureate degree programs in nursing attend science courses with other undergraduates. The trend in diploma programs is to purchase instruction in the sciences from a local junior college, a college, or a university. To avoid the unnecessary duplication of expensive facilities, diploma programs should plan science laboratories only if such facilities are not available from other institutions.

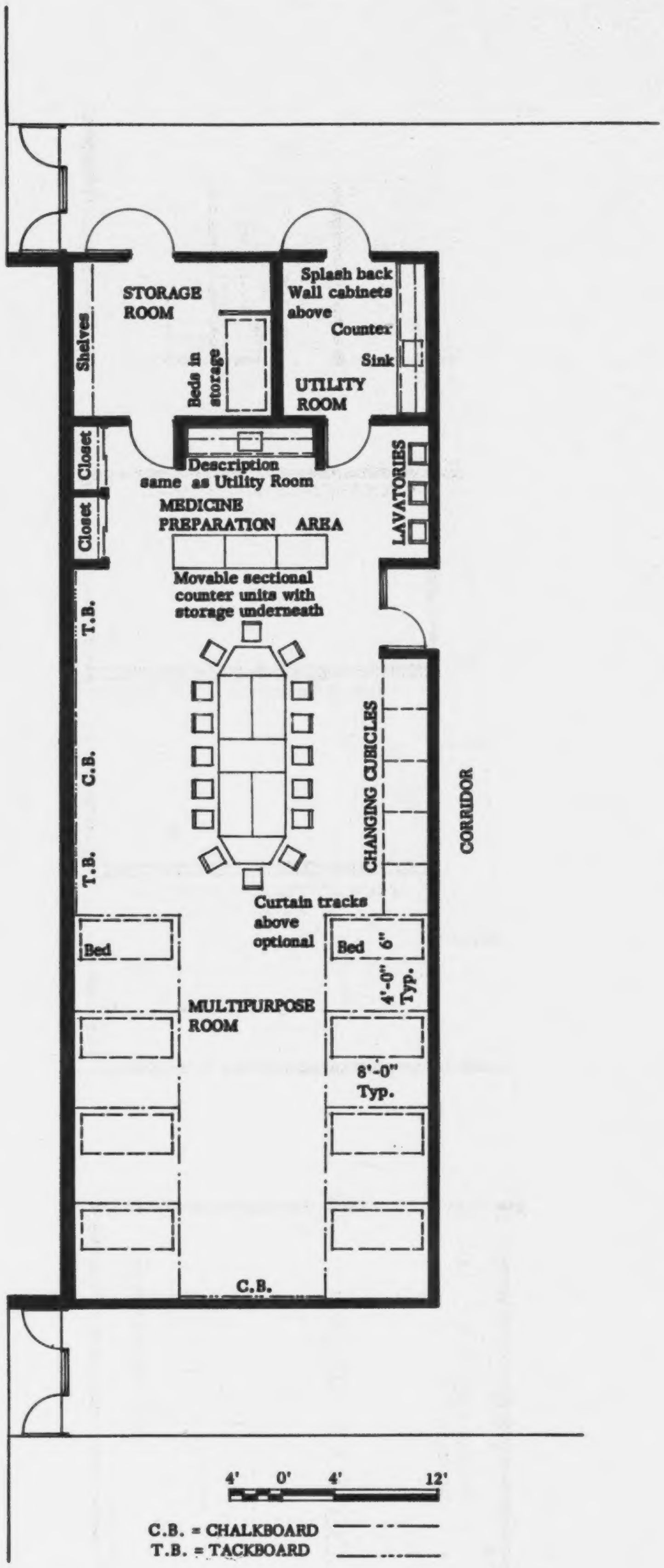

STORAGE ROOM
Shelves
Beds in storage
Splash back
Wall cabinets above
Counter
Sink
UTILITY ROOM
Closet
Closet
Description same as Utility Room
MEDICINE PREPARATION AREA
LAVATORIES
Movable sectional counter units with storage underneath
T.B.
C.B.
T.B.
CHANGING CUBICLES
CORRIDOR
Curtain tracks above optional
Bed
Bed
6'
4'-0" Typ.
MULTIPURPOSE ROOM
8'-0" Typ.
C.B.
4' 0' 4' 12'
C.B. = CHALKBOARD
T.B. = TACKBOARD

*Figure 17. Multipurpose room.*

## LIBRARY

Library facilities are required in all nurse education programs. Wherever feasible, a library may be shared with other types of programs; however, the diploma school will usually have its own library. An example of library facilities for a diploma program is shown in figure 18.

The information presented in the remainder of this section is considered minimum for the needs of a nurse education facility whether it is part of a larger library or an independent library. In any event, future expansion should be a major planning consideration.

Principal elements to be considered in designing a library include: (1) the library room; (2) the librarian's office; (3) the librarian's workroom; and (4) the storage area for audiovisual equipment and models.

### *Library Room*

*Reference and Study Area.*—Study space should accommodate a minimum of one-third of the total student body. Reference tables may be provided for one-half of these students and carrels for the other half. Teaching machines may be used in carrels.

The reference and study area should occupy 55 to 60 percent of the total floorspace of the library room.

*Service Area.*—Card catalog and circulation activities should be located near the library entrance and reading area.

*Storage Area.*—All nursing programs should have an adequate amount of space for stacks to accommodate necessary titles and bound volumes of periodicals. Appropriate filing arrangements should be provided for reports, pamphlets, bulletins, microfilms, microcards, and programed material for teaching machines. For the diploma program, stacks should be provided for a minimum of 3,000 titles and 1,000 bound periodical volumes.

### *Librarian's Office*

The librarian's office should be separated from the library room by a glazed wall partition or a view window to enable the librarian to oversee activity in the library. The office should be sufficiently large to accommodate several people for an informal conference and should be equipped with necessary furniture including bookshelves, desk, and typewriter stand.

### *Librarian's Workroom*

The workroom should be adjacent to the library room and to the librarian's office. Direct access should be provided into the corridor to permit easy deliveries by either a 3-foot 8-inch clear opening or double doors.

The room should include:

- Counter worktop with sink and storage cabinets underneath; part of the counter should have knee space underneath.
- Storage shelves or wall cabinets above.
- Adequate number of electrical outlets.
- Space allocation for desk, worktables, movable book carts.

### *Reference Reading Room*

Nurse education programs which use adjacent library facilities may need only a small

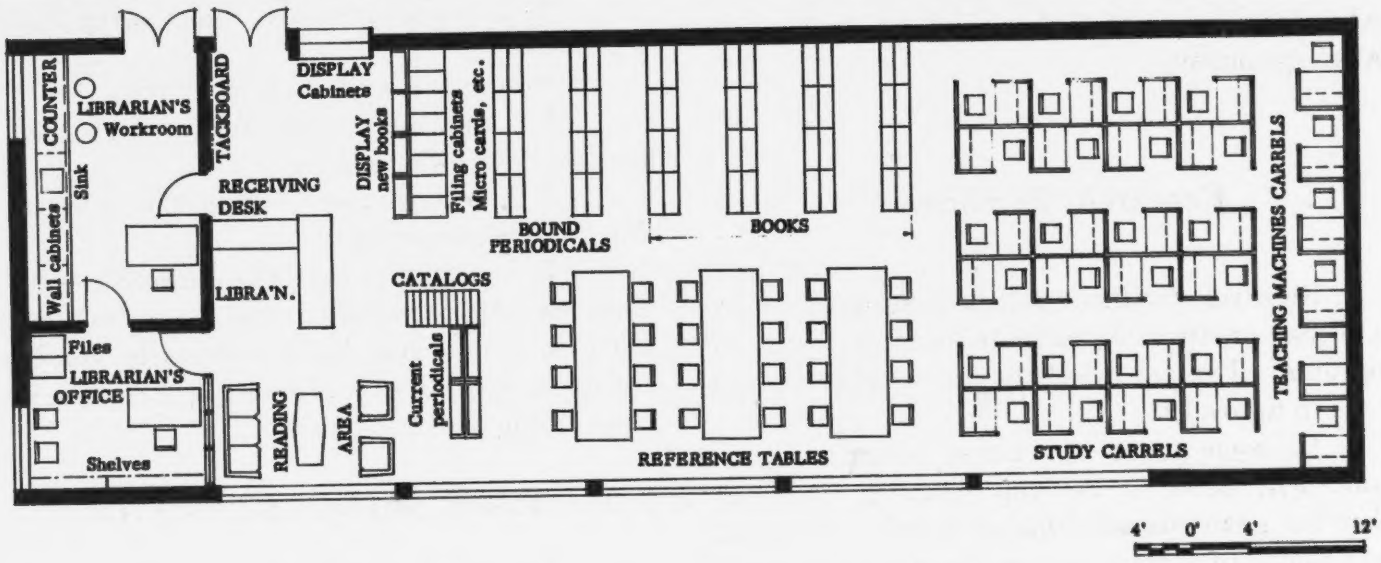

COUNTER
LIBRARIAN'S Workroom
Sink
Wall cabinets
TACKBOARD
DISPLAY Cabinets
DISPLAY new books
Filing cabinets Micro cards, etc.
RECEIVING DESK
LIBRA'N.
BOUND PERIODICALS
BOOKS
CATALOGS
Files
LIBRARIAN'S OFFICE
Shelves
READING AREA
Current periodicals
REFERENCE TABLES
STUDY CARRELS
TEACHING MACHINES CARRELS
4'
0'
4'
12'

*Figure 18. Library facilities for a diploma nursing program.*

reference-reading room in the nursing education facility. Standard references and professional periodicals should be kept in this room where study space should also be provided.

Equipment such as shelves, storage cabinets, reference tables, and seats around tables for 16 people should be provided.

### *Storage Area*

Some nurse education programs may wish to centralize all teaching aids under the librarian's supervision. Such a center is sometimes referred to as the Instructional Materials Center (IMC). If provisions for storing skeletons and full-scale models of the human body are not made elsewhere (i.e., lecture-demonstration room, classrooms, or multipurpose demonstration room), a central storage facility should be provided. This room should be placed close to the library and should be equipped with sturdy open shelving to hold heavy equipment. In planning the space to be provided for storing charts and diagrams, consideration should be given the need for easy identification and accessibility.

Full-scale skeletons and models of the human body, preferably mounted on a small cart for easy transportation, should be stored in full-size closets. Small models of parts of the human body may be stored in wall cabinets with glazed doors for easy identification. It may be preferable to store certain audiovisual items within the room in which they are used. In addition, a general storage area or room is required, and provision for storing teaching machines should be made.

A building with more than one story will need at least one service elevator for transporting heavy equipment.

## Research Facilities

Research facilities will be required only by the baccalaureate and graduate nursing education programs. Typical laboratory arrangements are shown in figure 19.

In some instances, nurse education programs will need to develop research facilities either for graduate students or faculty members. The amount of laboratory space required depends upon the type of research program offered. Therefore, before architectural plans are developed, the needs should be carefully evaluated and defined by the faculty members and others who will use the laboratory facilities. The National Institutes of Health study, *Planning and Design of Medical Research Facilities*, gives detailed laboratory space requirements. (See item 13, Selected Bibliography, p. 77.)

The building program for research facilities will vary among schools since it must be based on each school's individual requirements. Research facilities may include:

- Biological science laboratories.
- Behavioral science laboratories.
- The data analysis room including offices and conference room.
- Multipurpose project room(s).

### BIOLOGICAL SCIENCE LABORATORIES

Biological science laboratories will need the following spaces:

- Separate offices for each researcher.
- Storage or supply preparation room to serve several laboratories, for equipment, glassware, and supplies.
- Deluge shower and eye bath for emergencies.

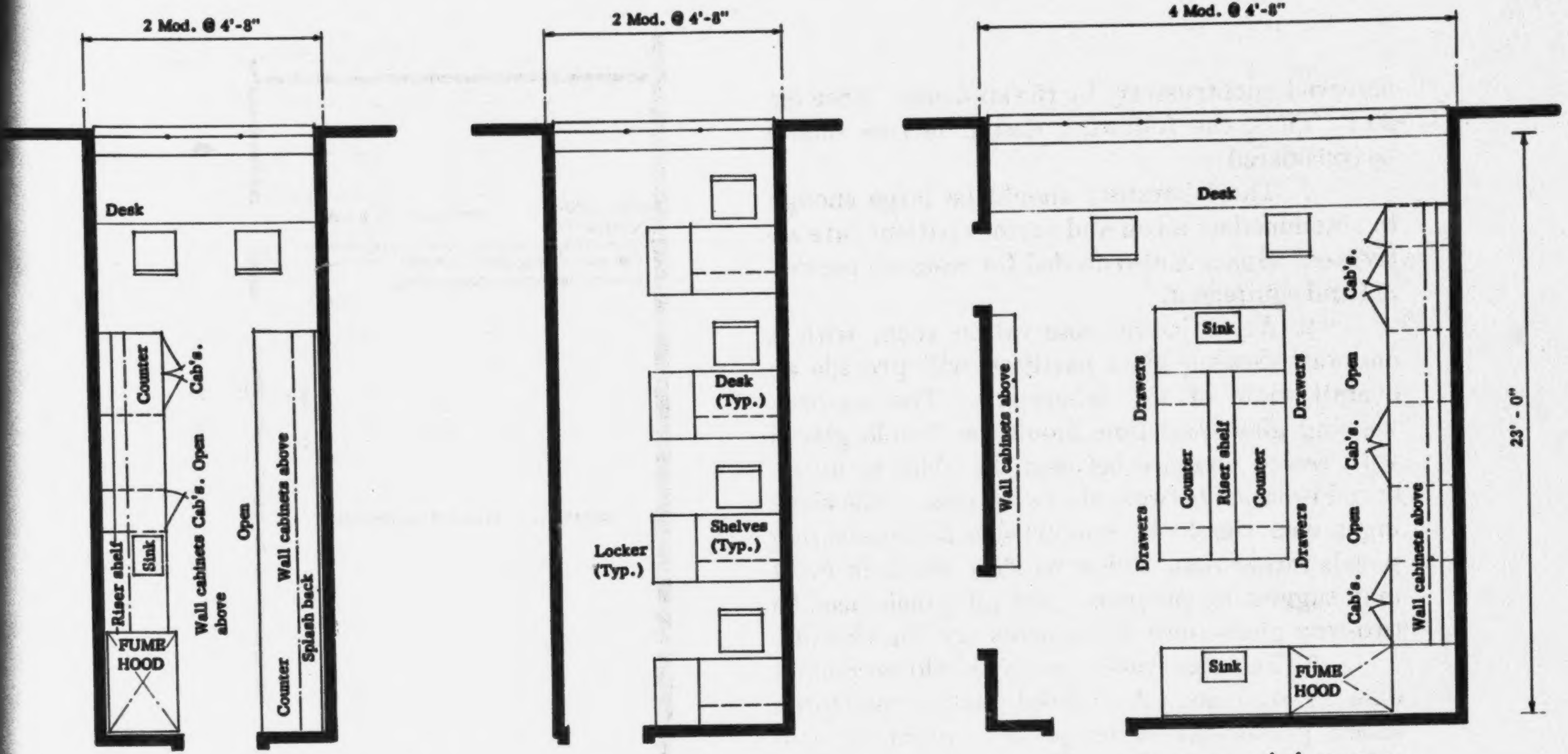
Design factors to be considered for these laboratories are:

- Counters of different heights with knee space underneath and reagent shelf. These may be located along the walls or, if the space permits, an island-type counter similar to others should be provided.
- Chemical-resistant sinks with hot and cold water.
- Gas, air, and electrical outlets.
- Fume hoods with adequate exhaust system and sprinkler heads.
- A refrigerator or freezer may be needed for these laboratories.

It is assumed that the animals needed for research will be supplied from a central location, since it would not be economically feasible to construct special animal housing facilities within the nursing education unit.

### BEHAVIORAL SCIENCE LABORATORY

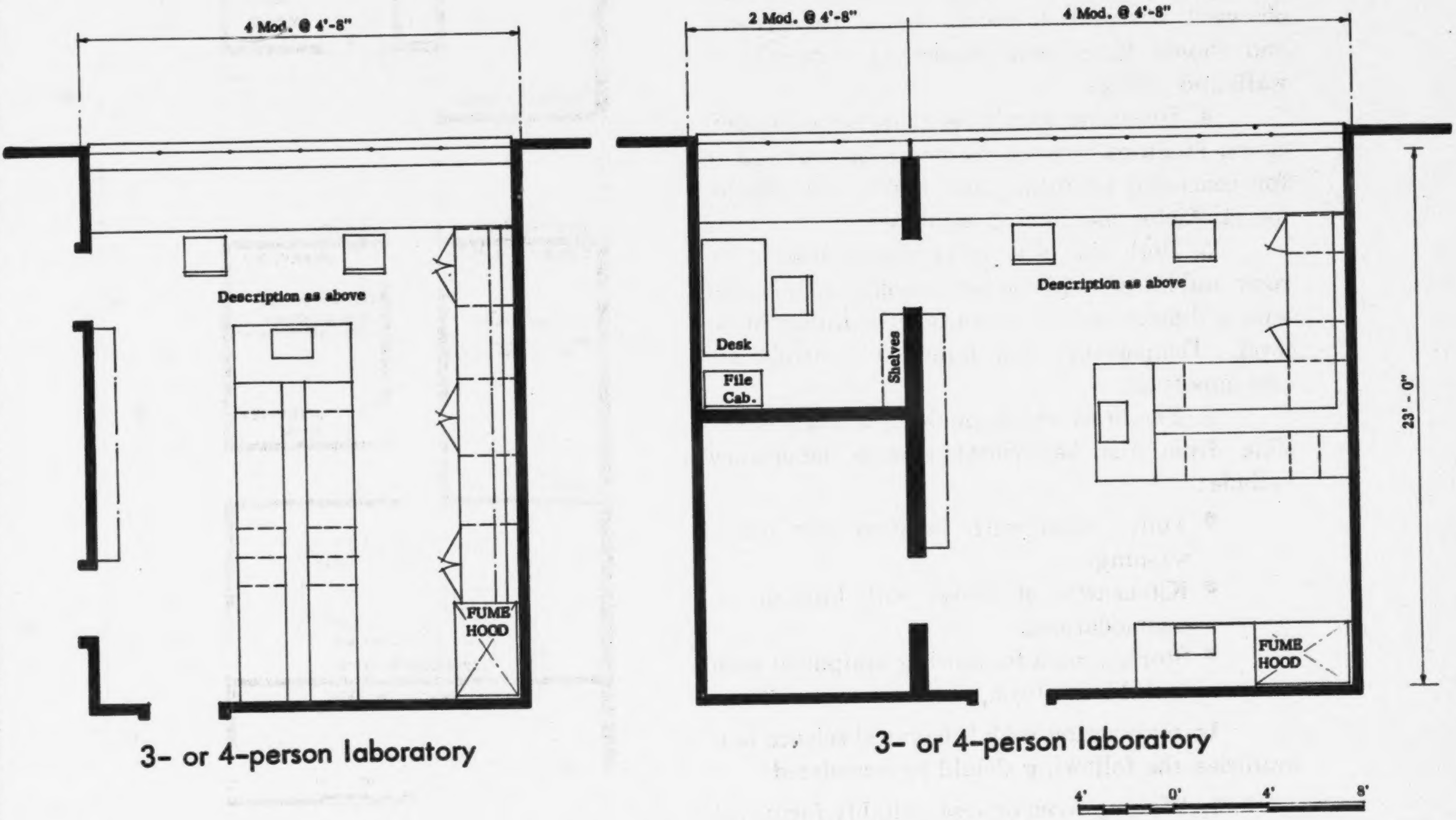
The primary requirement in the behavioral science laboratory is that the human subject be


2 Mod. @ 4'-8"
Desk
Counter
Cab's.
Cab's. Open
Riser shelf
Sink
Wall cabinets above
FUME HOOD
Open
Wall cabinets above
Splash back
Counter
2 Mod. @ 4'-8"
Desk (Typ.)
Shelves (Typ.)
Locker (Typ.)
4 Mod. @ 4'-8"
Desk
Cab's.
Sink
Drawers
Open
Wall cabinets above
Counter
Riser shelf
Counter
Drawers
Cab's.
Open
Drawers
Drawers
Cab's.
Wall cabinets above
Sink
FUME HOOD
23' - 0"

2-person laboratory

4 study cubicles

3- or 4-person laboratory


4 Mod. @ 4'-8"
Description as above
FUME HOOD
2 Mod. @ 4'-8"
4 Mod. @ 4'-8"
Desk
File Cab.
Shelves
Description as above
FUME HOOD
23' - 0"
4'
0'
4'
8'

3- or 4-person laboratory

3- or 4-person laboratory

***Figure 19. Typical research laboratory arrangements.***

observed unobtrusively by the students. (See fig. 20.) Thus, the following design factors should be considered:

1. The laboratory should be large enough to accommodate a bed and various patient care activities. Space is also needed for research personnel and equipment.

2. An adjacent observation room with a one-way viewing glass partition will provide an overall view of the laboratory. The one-way viewing glass partition should be double glazed with sealed airspace between the glass to insure sound isolation between the two rooms. The viewing screen should be unobtrusive floor-to-ceiling panels rather than a view window which in itself may suggest its purpose. Not all panels need be two-way glass—only those necessary for viewing.

3. The observation room should accommodate 16 students. A stepped seating platform, either permanent or temporary, might be considered to assure all the participants a good overall view of activities within the laboratory. Since the subject should not be disturbed while being observed, observation rooms should be carpeted and should have sound-absorbing materials on walls and ceilings.

4. Provision should be made for communication facilities between the two rooms as well as for concealed recording and audio and physiological factor monitoring equipment.

5. Both the behavioral science laboratory room and the observation room should be equipped with a dimmer switch to control the illumination level. Temperature and humidity controls are also important.

6. Facilities which should be directly accessible from the behavioral science laboratory include:

- Toilet room with lavatory for handwashing.
- Kitchenette or alcove with kitchen accommodations.
- Storage room for storing equipment such as children's toys.

In conjunction with behavioral science laboratories, the following should be considered:

1. Waiting room or area, suitably furnished for adults or adults with children.

2. Play nursery for children with provision to oversee the activities from the waiting room.

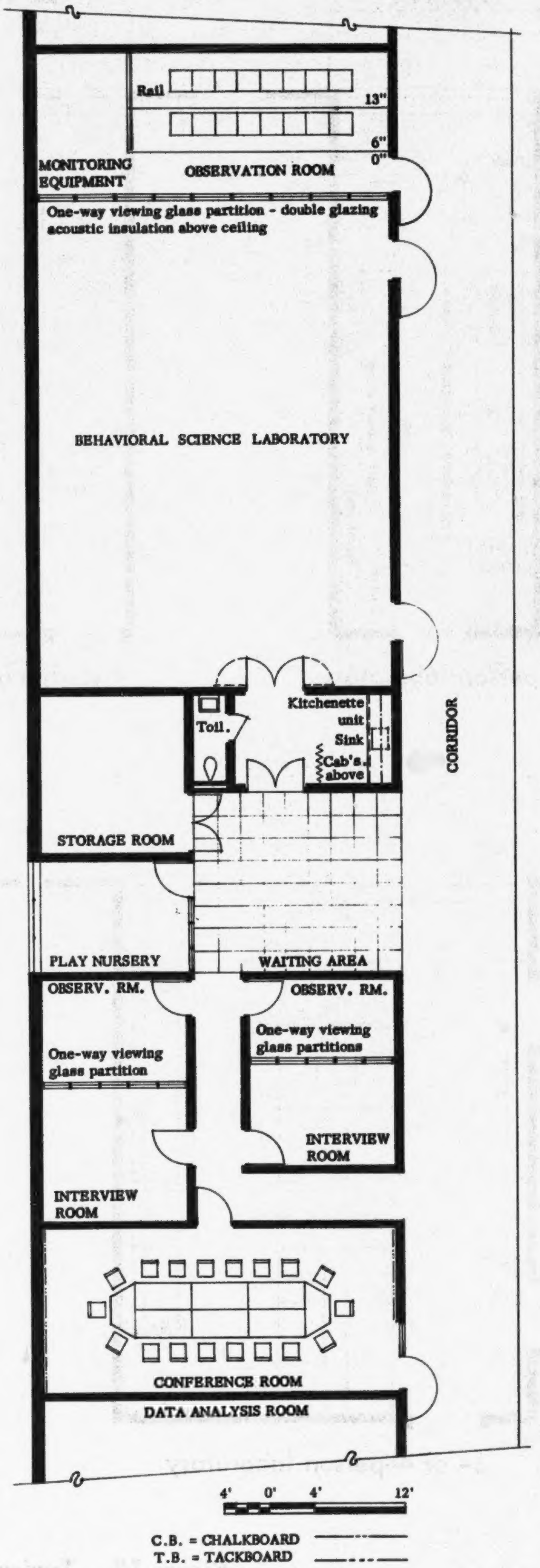

Rail
13"
6"
0"
MONITORING EQUIPMENT
OBSERVATION ROOM
One-way viewing glass partition - double glazing acoustic insulation above ceiling
BEHAVIORAL SCIENCE LABORATORY
Toil.
Kitchenette unit
Sink
Cab's. above
CORRIDOR
STORAGE ROOM
PLAY NURSERY
WAITING AREA
OBSERV. RM.
One-way viewing glass partition
OBSERV. RM.
One-way viewing glass partitions
INTERVIEW ROOM
INTERVIEW ROOM
CONFERENCE ROOM
DATA ANALYSIS ROOM
4' 0' 4' 12'
C.B. = CHALKBOARD
T.B. = TACKBOARD

*Figure 20. Behavioral science laboratory for a nursing graduate program.*

Special attention should be paid to acoustical treatment of this room and its decor.

3. Interviewing rooms, with adjacent observation room, separated by one-way glass viewing partition. (Items 2–5 cited above also apply here.)

### DATA ANALYSIS ROOM

The data analysis room will require space for calculating machines, tables, and office-type furniture. Area allocation should be made for storing data. Other requirements include individual offices and a conference room that can be used by research personnel.

## Faculty Offices

Faculty offices may be grouped together to form the faculty offices suite. In programs having a small faculty, administrative and business offices may be grouped together with faculty offices forming a unit that is separate in character from the teaching spaces. (See fig. 16.) In addition to offices for each faculty member, one or more offices might be provided for guest lecturers or visiting faculty.

The faculty offices suite should include:

- Individual offices for each faculty member. Each office should have ample space for furniture, bookcases or shelves, and files.
- Conference room or rooms. The size of the conference room depends on the number of people to be accommodated. Chalkboards and tackboards are necessary in these rooms.
- Faculty lounge. An alcove or small room off the lounge may be provided to accommodate a kitchenette unit and a counter with sink and storage cabinets underneath.
- Toilet facilities including a washroom and locker room or lockers, located in proximity to the lounge or adjoining it. An alcove off the washroom or small room accommodating a sofa, cot, or other suitable furniture might be considered.
- Graduate assistants' office. This room should be furnished with desks for use of teaching assistants or graduate assistants.

In addition to the teaching machines located elsewhere in the school for students' use, some teaching machines may be needed in the faculty office suite for use by members of the faculty who may be engaged in developing programed materials.

## Administrative Unit

The administration needs of a nursing education program may range from nominal to total services, depending upon its relationship to a college or university that permits the use of existing administrative services.

The administrative unit should preferably be separate from teaching space in order to separate the two different kinds of traffic. Moreover, the space in this unit should lend itself to possible future rearrangement, with minimum of disturbance and cost.

### OFFICES AND ANCILLARY SUPPORTING AREAS

Requirements for office space and for supporting areas and services will vary from school to school. Each program, therefore, should determine its particular needs. Some of the spaces to be considered include:

1. A lobby and reception area with an information desk as a point of control. The information desk or counter may be incorporated in the general office. In small schools the lobby or reception area may also be the secretary's office and the secretary may also be the receptionist. Toilet facilities for visitors should be conveniently located.

2. General office including space for secretarial staff. The amount of space needed will be based on the ratio of secretaries to faculty members established by the school's policy.

3. Space for filing cabinets for the students' active records. This may be either a part of the general office or a small room directly accessible from the general office. A storage area should be provided for inactive files. Programs organized under hospital control must provide space for permanent storage of student and school records.

4. Space for duplicating equipment including a counter with sink and storage cabinets underneath. This space may be either an alcove in the general office or a small room directly accessible from the general office.

5. Storage room for stationery directly accessible from the general office.

6. Small room for receiving, dispatching, and distributing mail and packages. This room also may serve as a message center for faculty members.

7. An intercommunication control system (switchboard) within the general office. Intercommunication between the rooms within the facility for nursing education is highly desirable. Outside calls should be handled by one person who would transfer them to the party concerned or, when necessary, take messages.

8. Wall space should be allocated for official bulletin boards either in the lobby waiting area or outside the general office.

9. Storage room for miscellaneous office equipment or furniture.

10. An office for the dean or director. The office should be large enough to accommodate several people for small conferences. A private toilet room with handwashing facilities and a coat closet adjacent to this office is highly desirable. (See fig. 16.)

11. An office for a secretary adjoining or accessible to the office of the dean or director.

12. Office or offices for assistants or associates of the dean or director. These offices should either be adjacent or in proximity to the office of the dean or director.

13. Office for registrar with ample space for filing cabinets.

14. Office for admissions officer with ample space for filing cabinets.

15. Students' health service and observation area.

16. Office for students' counselor, incorporating waiting area.

17. Office for graduate assistants and fellows, each of whom should have a desk.

18. Janitors' closets and storage space of housekeeping supplies.

### ADMINISTRATIVE STAFF LOUNGE

The physical size of the lounge will depend on the number of personnel to be accommodated. In a relatively small school, one lounge should serve both the administrative personnel and faculty.

An alcove or a small room off the lounge may be provided to accommodate a kitchenette unit and a counter with a sink and storage cabinets underneath.

A toilet room, washroom, and locker room should be provided in proximity to the lounge or adjoining it. An alcove off the washroom or a small room having a sofa or cot or other suitable furniture might be considered.

## Students' Facilities

Provision of student facilities should be governed by such factors as enrollment and the school's physical setting. Whether the facility is a self-contained unit or is a part of a larger education complex is an important consideration. The needs should be evaluated and established individually for each program.

Spaces for the following should be considered:

- Toilet room and washroom for women students with adjoining room or alcove to accommodate a sofa or cot.
- Toilet room and washroom for male students, if any.
- Locker rooms or lockers in corridors.
- A student lounge may be found desirable, particularly if no other lounges in the facility are available to nursing students. A lounge may be provided in the students' residence which may be physically connected with the nursing education facility. In some facilities, students' lounge or lounges are provided, either in the student union building or elsewhere on the college or university campus.

## Supporting Areas

Listed below are planning considerations for supporting areas:

- The provision of coat alcoves in corridors may be desirable.

- The need for general storage rooms should be determined by each program.
- Housekeeping and maintenance rooms, including janitors' closets and storage areas for housekeeping supplies and equipment, will be needed.
- Space should be allocated for vending machines either in alcoves of corridor or centralized in one room assigned for this purpose.
- An adequate number of public pay telephone booths should be located in strategic locations in alcoves off corridors so that traffic will not be obstructed.
- An adequate number of drinking fountains or water coolers should be placed in alcoves off corridors or recessed in the wall so that traffic flow will not be obstructed.

## Continuing Education

Continuing education is usually a part of the overall school facility. However, for the purposes of nursing education it would have the following elements:

- Assembly room to seat a large group.
- Conference rooms.
- Lounge room and space for coffee service.
- Reception and registration area.
- Men's and women's toilets.
- If warranted, offices for the continuing education director and staff.

### ASSEMBLY ROOM

The number of people to be accommodated in the assembly room will depend upon the individual facility. In general, provision should be made for 100 or more persons, seated along rows of tables or groups of sectional tables. A movable platform to elevate the speaker should be considered.

If found desirable, this room may be subdivided into from two to four conference spaces by means of folding partitions which should preferably stack up in a wall alcove designed for this purpose. They should be selected for maximum sound-retardant properties to limit the passage of sound from one space to the other. Sound reduction of at least 25 to 30 decibels is considered minimum. These conference spaces should have chalkboards and tackboards.

### CONFERENCE ROOMS

In some institutions it may be desirable not to subdivide the assembly room, in which case four or five small conference-type rooms should be provided, each to accommodate from 20 to 25 persons. These rooms should have separate entrances, should be equipped with chalkboards and tackboards, and should be arranged with seats around tables for face-to-face conferences.

### RECEPTION AND REGISTRATION AREA

Definite allocation for the reception and registration area should be made. Coat room or alcove for depositing the outer garments should be incorporated.

*Lounge Room.*—A lounge room should be provided large enough to accommodate the anticipated number of participants in the Continuing Education Program. An alcove accommodating a kitchenette unit, counter for coffee service, and vending machines may be considered desirable.

An adequate number of toilets should be convenient to this area.

# LIGHTING

Lighting should be considered as one of the tools of architectural design through which the following functional characteristics may be achieved:

1. Visibility (influenced by the amount, color, distribution, and control of light).
2. Comfort (elimination of glare and strain).
3. Composition (layout of light fixtures—architectural esthetics).
4. Atmosphere (psychological effects).

Illumination requirements in teaching and study areas include:

1. Local illumination of the instructor's station, chalkboards, and display areas.

2. Lighting of the table surface for taking notes.

3. General background lighting on walls and ceiling.

The objective in any educational facility lighting program is to produce a visual environment in which seeing may be accomplished efficiently and without hindrance or distraction from any part of the luminous elements of that environment. Adequate levels of illumination with properly balanced brightnesses help the educational process by improving visibility, by reducing visual fatigue, and by helping create a cheerful and and pleasant atmosphere.

The multipurpose demonstration and lecture rooms should have a comfortable general lighting system which provides a moderately high illumination level for general use and a subdued level for use during projection or special demonstrations. This can be accomplished with dimmer controls. If a demonstration table is used, spotlights should be aimed down on the table and the lecturer. These spotlights should be located within a 45° to 60° angle above the horizontal line of vision measured from the probable location of a speaker's head when he stands behind the table. This arrangement assures minimum glare and good lighting on the speaker's face. A low lighting level confined to the audience area for use in finding seats and taking notes is also necessary. This lighting may be provided from direct lighting units, well shielded from the audience and controlled so that light does not strike the projection screen when it is in use. Dimmer operation on the various circuits is desirable. If this area is to be used as a study hall, the level of illumination recommended for the task should be provided.

Chalkboard lighting should meet two brightness criteria. Chalkboards should be light enough to blend in well with their background and dark enough so that chalk writing has sufficient contrast to assure good visibility. A chalkboard should be measured for reflectance with a typical amount of chalk film on its surface. Colored boards should not exceed 20-percent reflectance and blackboards 10-percent reflectance under typical use conditions.

The writing on the chalkboard used by the instructor as a visual teaching aid should have a high degree of visibility. In the college field, it is not uncommon for a student to be seated beyond 50 feet from the instructor's chalkboard. For this reason, the instructor's board should be provided with supplementary lighting in the range of 150 foot-candles on the task.

*Receptacles.*—In general, receptacles should be of the type and current rating required and installed at a location convenient for use at all locations where plug-in service is required. In the demonstration area the receptacle outlets should be spaced for convenient use at any place along the walls as directed or along the risers in lecture-demonstration rooms. Grounding-type receptacles are recommended for use in all locations.

*Built-in Conduits.*—Provision should be made for such items as raceways, communication conductors (between teaching station and projection room), and television coaxial cables, even if there is no immediate need. If provisions are not made for these items during the initial planning stage, any future installation may prove costly.

### Levels of Illumination Currently Recommended for Specific School Areas

(Minimum on the task at any time) [1]

| *Area* | *Foot-candles on tasks* |
|---|---|
| Auditorium: | |
| Assembly only | 15 |
| Exhibitions | 30 |
| Social activities | 5 |
| Classrooms: | |
| Laboratories | 100 |
| Lecture rooms: | |
| Audience area | 70 |
| Demonstration area | 150 |
| Study halls | 70 |
| Typing | 70 |
| Corridors and stairways | 20 |
| Library: | |
| Reading room: | |
| Study and notes | 70 |
| Ordinary reading | 30 |
| Stacks | 30 |
| Book repair and binding | 50 |
| Cataloging | 70 |
| Card files | 70 |
| Check-in and checkout desks | 70 |
| Lounges: | |
| General | 10 |
| Reading books, magazines, newspapers | 30 |

See footnote at end of table.

| *Area* | *Foot-candles on tasks* |
|---|---|
| Offices: | |
| Accounting, auditing, tabulating bookkeeping, business machine operation, and reading poor reproduction | 150 |
| Regular officework, reading good reproductions, reading or transcribing handwriting in hard pencil or on poor paper, active filing, index references, mail sorting | 100 |
| Reading or transcribing handwriting in ink or medium pencil on good-quality paper, intermittent filing | 70 |
| Reading high contrast or well-printed material, tasks and areas not involving critical or prolonged seeing such as conferring, interviewing, and inactive files | 30 |
| Parking areas | 1 |
| Storerooms: | |
| Inactive | 5 |
| Active: | |
| Rough bulky | 10 |
| Medium | 20 |
| Fine | 50 |

Occasionally, local lighting is needed to supplement the general illumination. This is generally the case when it is economically unfeasible to produce the recommended foot-candle levels from a general lighting system. If the seeing task is on oblique rather than horizontal surfaces, the illumination is reduced, resulting in a loss in task brightness. Also, some of the seeing tasks are more difficult because the contrast between the paper and the printing may be low. In both of the foregoing cases, supplementary illumination is sometimes required or indicated. Care should be used in the choice of supplementary lighting units, so that they will not direct objectionable glare into the eyes of any student. The distribution of the light across the working surface should be as uniform as possible.[2]

# MECHANICAL FACILITIES

THE DESIGN standards for mechanical facilities for most areas of the school are well established and present no particular problem. However, not so widely understood are the designs for the environment, safety requirements, and utility services for such areas as the laboratories.

Since air conditioning is an accepted installation in modern buildings, nursing schools should not be an exception. The school environment is important in achieving student and staff comfort, efficiency, and health, and a good environment will assist in attracting teaching personnel and students. With the exception of the northernmost part of the United States, heating, ventilation, and humidity control can be provided with an air system. The combining of ventilation, heating, and cooling into one air system is not only economical in cost but also provides more workspace within the building. Sufficient room should be provided in mechanical spaces to properly service and maintain the equipment.

Heating, ventilation, and air-conditioning systems in the school should be controlled independent of those systems in the hospital because of the short hours the school will be in use. Temperature and humidity within the comfort zone with a well-defined pattern of air movement is necessary to provide an acceptable environment within the school and especially in the science laboratories.

The mechanical facilities must be designed to accommodate the changes in teaching content and methods, and the rapid and continuing developments of new types of equipment that serve both teaching and research. The changing conditions will require ingenuity in design to provide a flexibility and capacity in service systems which will permit frequent changes in the services with a minimum of disturbance and expense and a potential for future expansion of the facilities.

The design standards relative to temperature, humidity, and ventilation for some areas of the school such as amphitheater, lecture rooms, and offices are well established and in most instances will be governed by local, State, and national codes. Not so widely understood are the designs for utility services and environmental and safety requirements for such areas as teaching laboratories, research laboratories, and their

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[1] See items 1 and 2, Selected Bibliography, p. 76.

[2] *Illuminating Engineering Society Lighting Handbook*, pp. 11–21. (See item 6, Selected Bibliography, p. 76.)

auxiliaries and facilities for highly specialized subjects.

Of utmost importance in the design of the systems are four basic considerations, namely: location of the systems to provide easy accessibility; provision of sufficient space to accommodate the systems without crowding; sizing and arrangement to facilitate expansion and modification as required; and quality of materials used in fabrication of the systems. The chases serving the various utility piping systems, ventilation ducts, and electrical raceways should be shafts of sufficient size to permit modifications to the systems and the installation of additional services as required.

The nursing school in most instances will be an adjunct of a hospital or of a group of medical or educational facilities. Normally all these buildings will be served by a central boiler and mechanical plant so that only under unusual circumstances will such plants be required in the school building. However, space will be required for certain mechanical equipment rooms throughout the building. Steam distribution and water heating equipment will normally be located in the basement, while fan rooms should be located on the various floors depending upon the design.

### LABORATORIES

Particular attention should be given to the types and size of equipment used in the various laboratories. The heat gain from ovens, drying cabinets, kettles, sterilizers, electronic equipment, and heating elements can negate the usefulness of an otherwise well-designed ventilation or air-conditioning system if neglected in the original design.

To insure safety of students and personnel and to provide a suitable environment, the byproducts of many of the activities must be contained in and exhausted from fume hoods. These byproducts may be odorous, toxic, radioactive, infective, explosive, or corrosive. The ventilation system must provide sufficient air to insure good ventilation of the hoods in addition to that required to provide a suitable environment.

### ELECTRONIC EQUIPMENT AND DATA PROCESSING ROOM

To insure proper and accurate performance of the equipment of these rooms, particular attention must be directed toward careful control of humidity, temperature, and ventilation.

### PROJECTION BOOTHS

Where enclosed rooms are used for motion picture or slide projection, care must be exercised to insure proper temperature and ventilation.

### PLUMBING AND UTILITIES

Plumbing fixtures, including trim and piping materials, must be selected with care to suit the function they serve. Acid-resisting piping materials should be used for the drainage system of all laboratory and fume hood sinks.

It is important that hazardous systems such as gas piping have an emergency shutoff valve located at some distance from the point of use. Deluge showers and eye baths should be installed in each laboratory in which hazardous materials are used. Controls for the operation of utility services to fume hoods should be mounted on the exterior of the hood.

## OTHER DESIGN CONSIDERATIONS

### FIRE SAFETY

Circulation spaces such as corridors and stairways should be wide enough to minimize congestion and comply with requirements of local and national codes.

A corridor cutoff to isolate the library from the remainder of the facility is desirable. This would permit use of the library during off-school hours. The type of barrier selected should comply with exit requirements of local and national codes.

Adequate exit illumination, appropriate signs designating the location of exits or the path of travel to reach them, and approved manually operated fire alarm facilities must be provided.

Standard-type fire extinguishers must be provided in hazardous areas.

### ACOUSTICS IN LEARNING SPACES

Since acoustical design is a complex subject, it will not be discussed in detail here. Attention is called, however, to the following objectives relating to acoustics in learning spaces:

1. The provision of a satisfactory acoustical environment which prevents sound waves from passing through materials or open spaces.
2. The provision of good hearing conditions, by controlling the direction, impact, duration, absorption, and reflection of sound waves within the space itself.

## CONSTRUCTION COST FACTORS

THE AVERAGE cost of construction for schools of nursing will follow closely the cost of construction for colleges or university buildings if all components of the facility are included. The incorporation of research facilities would tend to increase the average cost somewhat due to the additional plumbing and ventilation requirements. The types of finishes provided and the kinds of classroom and laboratory furniture used can make a considerable difference in the total cost. In planning for additions to existing schools of nursing, if only classrooms are being added, a lower range of unit costs may be satisfactory; on the other hand, if the proposed addition contains mostly laboratories, a higher range of unit costs should be used. National unit construction costs for schools of nursing for 1963 range from $19 to $25 per square foot. Construction costs will vary to some extent with the section of the country. It is also important to consider that construction costs have been rising approximately 4–6 percent annually. Therefore, the unit cost selected for estimating a project in the programing and schematic stage should reflect the costs as they probably will be 1 or 2 years hence when bids are requested.

The actual cost of building a nursing education facility involves costs in addition to the construction contracts. In preparing a total estimated budget during the programing and schematic stages, the following items of cost must be provided for:

- Construction contracts.
- Built-in equipment not included in construction contracts such as laboratory furniture.
- Movable furniture and equipment.
- Site costs including clearing of site.
- Site survey and soil investigation.
- Architect and consultant fees.
- Owner's administrative costs.

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## *Appendix A*

# Operating Budgets for Nursing Programs[1]

## GENERAL CONSIDERATIONS

### COST ANALYSIS METHOD

THE PROPOSED BUDGETS presented in this appendix are based on the cost analyses of a sampling of nursing programs. The method used was the same as that employed in "The Study on Cost of Nursing Education"[1] conducted by the National League for Nursing from 1958–64. Other methods of cost analysis could result in differences in the portion of the total cost assigned to any particular item and could reflect a different total cost for the educational program. While depreciation of buildings has been computed in this analysis, it is not allocated to any cost center or department.

### EFFECTS OF VARIABLES ON COSTS

The data used as bases for the proposed budgets apply to various kinds of nursing programs throughout the country. In the case of diploma nursing programs, the Study on Cost of Nursing Education found significant relationships between certain costs of the program and the variables, type of control, enrollment size, and geographic location. While the study extended over a 5-year period, there was no significant evidence that the cost of the educational program varied from year to year. When applicable, the data used as a basis for the projected budget were limited to those cases where the enrollment size was close to that of the projected program. The data used represent an average of programs in various geographic regions, both accredited and non-accredited by the National League for Nursing, under private or public control.

### COMPARABILITY OF COSTS AMONG TYPES OF NURSING PROGRAMS

In analyzing each nursing program, the cost of each was studied in relation to and as a part of the total operating cost of the institution offering the course. Comparing the result of an analysis of a baccalaureate program with that of a diploma program would involve comparing total costs that resulted from computing different items of cost. The dollar values given are not intended to be used to determine whether or not one type of program is more expensive than the other. Rather, they are intended to indicate to the particular institution how a nursing program could affect its costs.

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[1] Harold R. Rowe, Director. "Study on Costs of Nursing Education." National League for Nursing. (Unpublished.)

# PROJECTED OPERATING BUDGET FOR A 3-YEAR INITIAL DIPLOMA NURSING PROGRAM

FOR ILLUSTRATIVE PURPOSES, the following case study is presented of a projected operating budget for a 3-year initial diploma nursing program.

## PROGRAM CHARACTERISTICS

The program has been in operation for at least 3 years. In the year considered, 64 students entered the program; the total enrollment was 148. Second- and third-year students each take one 12-week course in an outside cooperating agency. During the year the 148 students have a total of 6,096 student-weeks of instruction in the school of nursing. The science courses are taken outside of the school of nursing. The nursing education staff consists of an educational director, an assistant educational director, 15 nurse faculty members, a librarian, a counselor, a residence director, a secretary, and 3 clerk-typists.

## OPERATING BUDGET COMPONENTS

The costs of this type of nursing program are presented under two headings: the cost of the educational functions of the program and the cost of the noneducational functions of the program. Under educational functions are listed the costs of activities and services involved in instruction, per se. Noneducational function costs refer to the cost of board, room, laundry, and recreation. These items are not considered in the cost of collegiate programs, since they presumably are provided or purchased by the student.

## DETERMINING COSTS OF THE EDUCATIONAL FUNCTIONS

*Data Sources.*—Data used as bases for this budget are limited to those 31 cases in "The Study on Cost of Nursing Education" where the total enrollment was closest to that of the proposed enrollment. Because faculty-student ratios and square footage used for the nursing programs varied from that of the proposed program, the manner of deriving each item of educational function costs is described separately.

The cost items included here are:

SALARIES: Salaries of those whose activities are directed toward the educational functions of the program.

SUPPLIES: Money spent for supplies used in instruction.

DIRECT EXPENSES (SUBTOTAL): The sum of the two previous items.

STAFF BENEFITS: The cost of insurance, retirement contract premiums, retirement allowances, social security, workmen's compensation, and similar expenses prorated on the basis of salaries paid in each department.

PLANT OPERATION: The cost of heat, light, power maintenance, and housekeeping, plus any allocations, prorated on the basis of square footage.

ADMINISTRATION: Direct expenses of administration, plus any allocations prorated on the basis of direct expenditures.

LIBRARY: Direct expenses of the library and any allocations. (Prorated on the basis of usage when the nurses' library was part of a hospital medical library.)

*Proposed Operating Budget for Educational Functions.*—The derivation of cost centers or items in the proposed budget are shown in appendix table 1.

## DETERMINING COSTS OF THE NONEDUCATIONAL FUNCTIONS

DATA SOURCES.—Data used as bases for the budget for noneducational functions were obtained from the 31 previously mentioned programs. The total cost was computed on the basis of average cost per student week in these 31 cases applied to the number of student-weeks in the proposed program. The cost of separate items was derived on the basis of average percent for each in the 31 cases.

The cost items included here are:

SALARIES: Salary of those whose activi-

***Appendix Table 1. Derivation of items of cost for educational functions in the diploma nursing program***

| Item | Cost | Derivation |
|---|---|---|
| Salaries | $116,000 | Salary rates based on findings in 30 diploma programs, applied to the recommended number of nursing education staff. |
| Supplies | 20,340 | Average cost of supplies per student week in 31 similar cases, applied to the student-weeks of the proposed program. |
| Direct expenses (subtotal). | 136,340 | Sum of above. |
| Staff benefits | 3,956 | Average percent of salaries in 31 similar cases, applied to the proposed salaries. |
| Plant operation | 35,038 | Average cost per square foot in 31 similar cases, applied to the recommended square footage. |
| Administration | 11,630 | Average percent of direct expenses in 31 similar cases, applied to the sum of the first 2 items. |
| Library | 7,576 | Library costs per student-week in 31 similar cases, applied to the student-weeks of the proposed program. |
| Total | 194,540 | |

ties are directed toward the noneducational functions of the program.

**Supplies**: Money spent for supplies for noneducational functions.

**Direct Expenses (Subtotal)**: The sum of the two previous items.

**Staff Benefits**: The cost of insurance, retirement contract premiums, retirement allowances, social security, workmen's compensation, and similar expenses, prorated on the basis of salaries paid in each department.

**Health Services**: Direct expenses of the health service, plus any allocations prorated on the basis of usage in each department.

**Administration**: Direct expenses of administration, plus any allocations prorated on the basis of direct expenditures.

**Laundry**: Direct expenses of laundry, plus any allocations prorated on the basis of poundage and piecework per department.

**Dietary**: Direct expenses of dietary department, plus any allocations prorated on the basis of number of meals served to each department.

**Residence**: Direct expenses of the residence and any allocation, prorated on the basis of occupancy, plus, when applicable, the cost of plant operation of other areas used for noneducational functions.

*Proposed Operating Budget for Noneducational Functions.*—Appendix table 2 presents an itemization of the proposed operating budget for noneducational functions.

***Appendix Table 2. Proposed annual operating budget for noneducational functions in a diploma program with an entering class of 64 and a total enrollment of 148***

| Item | Cost |
|---|---|
| Total | $192,390 |
| Direct costs | 17,816 |
| Salaries | 12,602 |
| Supplies | 5,214 |
| Indirect costs | 174,574 |
| Staff benefits | 577 |
| Health services | 6,233 |
| Administration | 2,097 |
| Laundry | 5,195 |
| Dietary | 79,707 |
| Residence | 80,765 |

***Appendix Table 3. Proposed annual operating budget for educational and noneducational functions for a diploma program with an entering class of 64 and a total enrollment of 148***

| Item | Educational function costs | Noneducational function costs |
|---|---|---|
| Total | $194,540 | $192,390 |
| Direct costs | 136,340 | 17,816 |
| Salaries [1] | 116,000 | 12,602 |
| Supplies | 20,340 | 5,214 |
| Indirect costs | 58,200 | 174,574 |
| Staff benefits | 3,956 | 577 |
| Plant operation | 35,038 | – |
| Administration | 11,630 | 2,097 |
| Library | 7,576 | – |
| Health services | – | 6,233 |
| Laundry | – | 5,195 |
| Dietary | – | 79,707 |
| Residence | – | 80,765 |

[1] Salaries provide for the following personnel: 1 director, 1 assistant director, 15 nurse faculty members, 1 librarian, 1 counselor, 1 residence director, 1 secretary, and 5 clerk-typists.

# PROJECTED OPERATING BUDGET FOR A 2-YEAR ASSOCIATE DEGREE PROGRAM IN NURSING

FOR ILLUSTRATIVE PURPOSES, the following case study is presented of an operating budget for a 2-year associate degree program in nursing.

## PROGRAM CHARACTERISTICS

The program has been in operation for at least 2 years. In the year considered, 64 students entered the program; the total enrollment was 104. The nursing department staff consisted of the director, 10 faculty members, 1 secretary, and 3 clerk-typists.

The number of required credits was equally divided between general education courses taken in the arts and sciences, or corresponding departments of the junior college and nursing education which was given in the Nursing Department.

## COMPONENTS OF THE OPERATING BUDGET

Introduction of a nursing program into the junior college setting increases the cost of general education (arts and science) credits for the school, since additional credit hours must be planned. In addition, the cost of the nursing department needs to be considered in light of the particular requirements of a 2-year initial associate degree program in nursing.

## BASES FOR PROJECTING BUDGETS

Of the three types of nursing programs reviewed in "The Study on Cost of Nursing Education," the least amount of data was collected on the 2-year associate degree nursing program. These data were limited to analyses of nine such programs. Several existed for a relatively short time and had smaller enrollments than the 104 students for which this budget was projected. In one instance, a cost analysis was done for 2 consecutive years during which the enrollment increased from 27 to 48 students. Changes occurred in cost per student enrolled as well as in the percent of total cost contributed by certain cost items. These changes were most marked in the cost items relating to the nursing department.

The cost of arts and sciences per credit used in the proposed budget is based on the analyzed cost of 242,393 credits.

## GENERAL EDUCATION INSTRUCTION BUDGET

To estimate the increase in general education (arts and sciences) instruction costs, the average cost per credit in nine junior colleges was computed. All credits combined were estimated to cost $4,836,608. The average cost per credit was $19.95.

Assuming an enrollment of 104 students, each of whom would take 16 credits of general education per year, the credits would total 1,664 at a cost of $33,197.

This cost was distributed among the various cost centers or cost items on the basis of average percentage of total cost per item. The items considered were:

**SALARIES**: The salaries of all professional and nonprofessional employees employed in the department.

**SUPPLIES**: Money spent for supplies used in instruction and in departmental research. (When depreciation of equipment was computed as a direct expense, it was placed under "supplies." Institutions doing so would probably have a higher portion of costs under this heading.)

**DIRECT EXPENSES (SUBTOTAL)**: The sum of the two previous items.

**STAFF BENEFITS**: The cost of insurance, retirement contract premiums, retirement allowances, social security, workmen's compensation, and similar expenses prorated on the basis of salaries paid in each department.

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**Plant Operation**: The cost of heat, light, power maintenance, and similar expenses, plus any allocations, prorated on the basis of square footage in each department.

**General Institutional and Administrative Expenses**: General expenses of the junior college as a whole other than staff benefits. Examples of items included an alumni office, catalogs, commencement, publications, campaigns and travel, salaries and supplies for the general and business administrative staff, and any allocations prorated on the basis of direct expenditures in each department. (Basis for computing items in this category was a combination of cost items in two nursing programs.)

**General Library**: Salaries and supplies for the general library, plus any allocation prorated on the basis of usage by each department.

**Student Services**: The expenditures for services available to all students, including salaries and supplies for the registrar, the dean of students, the guidance program, the health service, and student activities, plus any allocations prorated on the basis of the number of students in each department.

*Proposed Operating Budget.*—The cost of general education credits taken by nursing students was distributed among eight categories, using average percentages, as shown in appendix table 4.

***Appendix Table 4. Proposed annual operating budget for general education credits in an associate degree program with an entering class of 64 and a total enrollment of 104 students***

| Item | General education expense or allocation | Average percentage |
|---|---|---|
| Total | $33, 197 | 100. 00 |
| Direct costs | 18, 740 | 56. 45 |
| Salaries | 16, 821 | 50. 67 |
| Supplies | 1, 919 | 5. 78 |
| Indirect costs | 14, 457 | 43. 55 |
| Staff benefits | 1, 285 | 3. 87 |
| Plant operation | 3, 705 | 11. 16 |
| General institutional administrative expense | 2, 609 | 7. 86 |
| General library | 2, 835 | 8. 54 |
| Student services | 4, 023 | 12. 12 |

## DETERMINING AN OPERATING BUDGET FOR NURSING INSTRUCTION

*Data Sources.*—In forecasting an operating budget for nursing instruction, primary consideration was given to the necessary faculty and facilities needed for such a program. The costs of certain items such as faculty salaries and plant operation were projected and were based on the recommended number of faculty members and space requirements. Excepting for the data pertaining to direct expenses for supplies, combined data from cost analyses of nine programs were used. Data pertaining to supplies were limited to those from programs having a total enrollment of 50 students or more.

*Special Budget Considerations.*—All the clinical nursing courses entail laboratory experi-

***Appendix Table 5. Derivation of items of cost for nursing education in the associate degree program***

| Item | Cost | Derivation |
|---|---|---|
| Salaries | $88,000 | Salary rate based on findings reported in "Study on Cost of Nursing Education." Application was made to the recommended number of faculty and other staff members. |
| Supplies | 3,712 | Average cost of supplies per student in cost analyses of associate degree programs with an enrollment greater than 50 students was applied to the recommended enrollment. |
| Staff benefits | 4,752 | Average percent of salaries in cost analyses of 9 associate degree programs was applied to the salaries proposed. |
| Plant operation | 14,401 | Average cost per square foot in the 9 programs was applied to the recommended square footage. |
| General institutional administrative expense. | 8,786 | Average percent of direct expenses used for this function in the 9 programs applied to the sum of the first 2 items. |
| Library | 5,572 | Average cost per student in the 9 programs was applied to the recommended enrollment. |
| Student services | 7,381 | Average cost per student in the 9 programs was applied to the recommended enrollment. |
| Total | 132,604 | |

ence. The number of hours of such experience is usually greater in the nursing courses (3 or 4 hours per credit) than in general education (2 hours per credit). The nature of the nursing laboratory, which includes learning experiences in the care of ill patients, greatly limits the number of students that the nursing faculty member can instruct in the clinical area at one time.

*Proposed Operating Budget.*—The cost centers or items in the proposed budget are identical to those used in the general education budget. The derivation of the items of cost vary, as shown in appendix table 5.

### ADDITIONAL COSTS TO THE JUNIOR COLLEGE FOR THE NURSING PROGRAM

A combination of the budgets presented indicated the probable increase in operating costs to the college for instruction in the nursing program. (See appendix table 6.)

***Appendix Table 6. Proposed annual operating budget for a nursing program in a community college with an entering class of 64 and a total enrollment of 104 students***

| Item | Total | General education costs | Nursing education costs |
|---|---|---|---|
| Total | $165,801 | $33,197 | $132,604 |
| Direct costs | 110,452 | 18,740 | 91,712 |
| Salaries [1] | 104,821 | 16,821 | 88,000 |
| Supplies | 5,631 | 1,919 | 3,712 |
| Indirect costs | 55,349 | 14,457 | 40,892 |
| Staff benefits | 6,037 | 1,285 | 4,752 |
| Plant operation | 18,106 | 3,705 | 14,401 |
| General institutional administrative expense | 11,395 | 2,609 | 8,786 |
| Library | 8,407 | 2,835 | 5,572 |
| Student services | 11,404 | 4,023 | 7,381 |

[1] Salaries provide for nonnurse faculty and the following nursing department faculty personnel: 1 director, 10 faculty members, 1 secretary, and 3 clerk-typists.

## PROJECTED OPERATING BUDGET FOR A 4-YEAR BACCALAUREATE NURSING PROGRAM

FOR ILLUSTRATIVE purposes the following projected operating budget is presented for a 4-year baccalaureate nursing program.

### PROGRAM CHARACTERISTICS

The program has been in operation for at least 4 years. In the year considered, 96 students entered the program; the total enrollment was 240. The nursing department staff consisted of the dean, 27 faculty members, 1 secretary, and 9 clerk-typists. The required credits were evenly divided between general education courses taught in the arts and sciences department of the college or university and courses in professional education offered in the nursing department.

### COMPONENTS OF OPERATING BUDGET

Introducing a nursing program into the college setting would add to the cost of arts and science instruction, since the student nurses would be required to have credits in this area also. The cost of the nursing department should be considered in light of the particular requirements of 4-year initial baccalaureate programs in nursing. The proposed arts and science portion of the nursing program budget is based upon the additional credit-hours of arts and science, and the nursing department portion of the budget is constructed from various bases that reflect the needs of such a department.

### DETERMINING THE OPERATING BUDGET FOR ARTS AND SCIENCE INSTRUCTION

In the "Study on Cost of Nursing Education," the typical basic nursing program accounted for 4.5 percent of all arts and sciences credits given to all students in the institution during the year of the study. The cost of these credits for nursing students was determined by computing the credit cost for all credits given and by prorating this cost to the various departments or schools on the basis of number of credits taken. To estimate the cost increase for arts and sciences instruction resulting from the introduction of a basic nursing program, the average cost per arts and science credit was computed.

The basic data were limited to 15 cost analyses with comparable credit units and with a total college or university enrollment of 1,000 or more. In these 15 cases, some 1,186,442 credits were taken during the year of study. The total analyzed cost of these credits was $33,013,840. The average cost per credit was $27.83.

Assuming an enrollment of 240 basic students and that each student took 16 arts and sciences credits per year, the 240 students would take 3,840 total credits at a cost of $106,852.

This cost was distributed among the various cost centers or cost items on the basis of the average percentage of total cost per item.

The items considered were as follows:

**Salaries**: The salaries of all professional and nonprofessional personnel in the department.

**Supplies**: Expenditures for supplies used in instruction and in departmental research. (When depreciation of equipment was computed as a direct expense, it was listed under "supplies." Institutions doing so would probably have a higher portion of costs under this heading.)

**Direct Expenses (Subtotal)**: The sum of the two previous items.

**Staff Benefits**: The cost of insurance, retirement contract premiums, retirement allowances, social security, workmen's compensation, and similar expenses prorated on the basis of salaries paid in each department.

**Plant Operation**: The cost of heat, light, power maintenance, and similar items, plus any allocations prorated on the basis of square footage in each department.

**General Institutional and Administrative Expenses**: General expenses of the university as a whole other than staff benefits. Examples of items include alumni office, catalogs, commencement, publications, campaigns and travel, salaries and supplies for the general and business administrative staff, and any allocations prorated on the basis of direct expenditures in each department. (Basis for computing items in this category was an analysis of a combination of cost centers in two nursing programs.)

**General Library**: Salaries and supplies for the general library, plus any allocations prorated on the basis of usage by each department.

**Student Services**: The expenditures for services available to all students, including salaries and supplies for the registrar, the dean of students, the guidance program, the health service, and student activities, plus any allocations prorated on the basis of the number of students in each department.

*Proposed Operating Budget.*—The cost of arts and science credits taken by the initial nursing students was distributed among the various categories as shown in appendix table 7.

***Appendix Table 7. Proposed annual budget for arts and sciences credits in the baccalaureate nursing program with an entering class of 96 and a total enrollment of 240 students***

| Item | Additional arts and sciences expense or allocation | Average percentage |
|---|---|---|
| Total | $106,852 | 100.00 |
| Direct costs | 72,549 | 67.90 |
| Salaries | 67,778 | 63.43 |
| Supplies | 4,771 | 4.47 |
| Indirect costs | 34,303 | 32.10 |
| Staff benefits | 3,807 | 3.56 |
| Plant operation | 7,304 | 6.84 |
| General institutional administrative expense | 6,546 | 6.13 |
| General library | 9,182 | 8.59 |
| Student services | 7,464 | 6.98 |

## DETERMINING THE OPERATING BUDGET FOR NURSING INSTRUCTION

*Special Budget Considerations.*—The nature of the laboratory (clinical) experience in the nursing department requires a relatively greater faculty-student ratio than does laboratory experience in arts and sciences. A relatively larger portion of the nursing courses entail laboratory experience. The number of hours of laboratory per credit is greater in nursing courses (usually 4 to 6 hours per credit) than in general education (usually 2 hours per credit). The nature of the nursing laboratory, which includes responsibility for the care of ill patients, greatly limits the number of students that the nursing faculty member can instruct in the clinical area at one time.

*Source of Data for Budget Forecast.*—In forecasting this budget, primary consideration was given to the necessary faculty and facilities that would be adequate for such a program. For instance, the faculty includes nursing program instructors who accompany and instruct the students who are having public health nursing field experience. The nursing plant includes sufficient space for individual conferences between faculty members and students.

***Appendix Table 8. Derivation of items of cost for nursing instruction in baccalaureate program***

| Item | Cost | Derivation |
|---|---|---|
| Salaries | $206,400 | Salary rate based on findings reported in "Study on Cost of Nursing Education." Application was made to the recommended number of faculty and other staff members. |
| Supplies | 11,153 | Average cost of supplies per student in 6 similar programs, applied to the recommended enrollment. |
| Staff benefits | 7,354 | Average percent of salaries in 6 similar programs, applied to the salaries proposed. |
| Plant operation | 32,103 | Average cost per sqaure foot in 14 [1] of the institutions studied to determine arts and sciences costs, applied to the recommended square footage. |
| General institutional administrative expense | 16,048 | Average percent of direct expenses used for this function in cost analyses of similar programs, applied to the sum of the first 2 items. |
| Library | 16,554 | Average cost per student in the 15 institutions studied to determine arts and sciences costs, applied to the recommended enrollment. |
| Student services | 17,227 | Average cost per student in the same 15 institutions, applied to the recommended enrollment. |
| Total | 306,839 | |

[1] 1 case deleted because of an atypical arrangement for operation of plant.

The data used as a basis for cost items were distributed to all students in the college or university. The use of the library or of student services are examples of such items. However, in forecasting cost items that were determined by the nature of the nursing programs, the data used were limited to six schools in which the enrollment and other characteristics resembled the characteristics of the proposed program.

*Proposed Operating Budget.*—The cost centers in the proposed operating budget are identical to those described for the arts and sciences instruction budget. The derivation of the items of cost vary, as shown in appendix table 8.

## ADDITIONAL COSTS TO THE COLLEGE OR UNIVERSITY

The foregoing budgets were combined to determine the probable increase in operating costs to the institution for all areas of instruction for the students in the nursing program. (See appendix table 9.)

***Appendix Table 9. Proposed annual operating budget for a baccalaureate degree nursing program with an entering class of 96 and a total enrollment of 240 students***

| Item | Total | Arts and sciences costs | Nursing department costs |
|---|---|---|---|
| Total | $413, 691 | $106, 852 | $306, 839 |
| Direct costs | 290, 102 | 72, 549 | 217, 553 |
| Salaries [1] | 274, 178 | 67, 778 | 206, 400 |
| Supplies | 15, 924 | 4, 771 | 11, 153 |
| Indirect costs | 123, 589 | 34, 303 | 89, 286 |
| Staff benefits | 11, 161 | 3, 807 | 7, 354 |
| Plant operation | 39, 407 | 7, 304 | 32, 103 |
| General institutional administrative expense | 22, 594 | 6, 546 | 16, 048 |
| Library | 25, 736 | 9, 182 | 16, 554 |
| Student services | 24, 691 | 7, 464 | 17, 227 |

[1] Salaries provide for nonnursing faculty and the following nursing department personnel: 1 dean, 27 faculty members, 1 secretary, and 9 clerk-typists.

## *Appendix B*

# Programing for a Nursing Education Facility

IN THE DEVELOPMENT of nurse education programs, special attention should be given to functional and building considerations. The following outline has been prepared as a guide to planning such facilities.

### A. FUNCTIONAL PROGRAM

1. Setting:
    a. Physical planning of facility.
    b. Identification as a cohesive unit, whether as a separate building, a wing of a building, or a floor in a large building.
2. Control:
    a. Administrative control of facility for nursing education.
    b. Type of program.
    c. Initial enrollment.
    d. Anticipated expansion of the student body.
3. Personnel:
    a. Administrative.
    b. Faculty.
    c. Maintenance.
4. Curriculum:
    a. Subjects.
    b. Size of classes.
    c. Types and number of classes (lecture, seminar, and discussion).
5. Educational requirements and resources:
    a. Lecture.
    b. Demonstration.
    c. Laboratories.
    d. Library.
    e. Teaching machines.
    f. Television monitor viewing.
6. Schedule of classes (utilization study of proposed facility).
7. Administrative policies (utilization of existing educational facilities in the vicinity or community to avoid costly duplication).
8. Students residence:
    a. Relationship to facility for nursing education, distance.
    b. If commuters, evaluation of distance, time, and availability of transportation.
9. Availability of dining and recreation facilities for students and faculty members.
10. Relationship of nurse education facility to other educational institutions as well as to such planning considerations in the community and region as transportation facilities and general community development.
11. Continuing education:
    a. The role of a new facility for nursing education in a particular locality.
    b. Areawide planning.
12. Long-range and short-range goals. (It might be helpful to formulate a master plan covering a number of years and amend it on the yearly basis as the needs will arise thus assuring an orderly growth.)

### B. BUILDING PROGRAM

1. Detailed information regarding each of the spaces for teaching, research, faculty, administrative, and service areas:
    a. Desirable number of persons to be ac-

    commodated, utilization rate, seasonal and daily load.
  - b. Purpose of the room or area, and the activities that take place in that space.
  - c. Special features required.
  - d. Interdependence and necessary physical relationship with other units, traffic flow.
  - e. Auxiliary supportive spaces.

2. The equipment and supplies required which will affect the size and arrangement of the rooms.
3. Site, orientation, and utilities.
4. Relation to existing buildings, if any.
5. Structure, building materials, finishes, exterior, interior.
6. Fire protection and safety.
7. Mechanical, electrical, air-conditioning equipment. Heat may be supplied from boiler room within a new facility or from existing adjacent facilities.
8. Acoustics.
9. Illumination.
10. Audiovisual equipment.
11. Communications.
12. Color and decor.

There are usually many possible solutions for each architectural problem, and it is the architect's role to find the best compromise between functional, structural, mechanical, esthetic, and economic considerations.

## RELATED AD HOC COMMITTEE REPORTS

Previous Ad Hoc Committee reports which are part of the series of publications concerned with hospital and related health facility planning are:

"Planning of Facilities for Mental Health Services," Report of the Surgeon General's Ad Hoc Committee on Planning for Mental Health Facilities. Public Health Service Publication No. 808. January 1961. 55 pp. 40 cents.

"Areawide Planning for Hospitals and Related Health Facilities," Report of the Joint Committee of the American Hospital Association and Public Health Service. Public Health Service Publication No. 855. July 1961. 56 pp. 35 cents.

"Medical Education Facilities—Planning Considerations and Architectural Guide," Prepared by the Public Health Service in cooperation with ad hoc committees on Medical School Architecture and Design of University Teaching Hospitals. Public Health Service Publication No. 1180–A–1b. 1964. 185 pp. $1.00.

"Areawide Planning of Facilities for Long-Term Treatment and Care," Report of the Joint Committee of the American Hospital Association and the Public Health Service. Public Health Service Publication No. 930–B–1. February 1963. 81 pp. 55 cents.

"Areawide Planning of Facilities for Rehabilitation Services," Report of the Joint Committee of the Public Health Service and the Vocational Rehabilitation Administration—Participating Agency: Association of Rehabilitation Centers, Inc. Public Health Service Publication No. 930–B–2. 1963. 88 pp. 55 cents.

"Areawide Planning of Facilities for Tuberculosis Services," Report of the Joint Committee of the National Tuberculosis Association and the Public Health Service. Public Health Service Publication No. 930–B–4. 1963. 46 pp. 40 cents.

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Public Health Service
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